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THE JOURNAL OF OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY.

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AURAL VERTIGO.*

BY DUDLEY D'AUVERGNE WRIGHT, L. R. C. P., M. R. C. S.,
LONDON, ENGLAND.

IT can scarcely be doubted that the exciting cause of vertiginous attacks (whether from lesions of the outer, middle, or inner ear) is the sudden alteration of intralabyrinthine pressure. This probably acts as a stimulus to the center of equilibration, by which a discharge of energy is brought about, resulting in those symptoms which we are accustomed to associate with Menière's disease. The whole series of phenomena is, therefore, the result of a reflex act.

It is probable, as Gowers says, that the presence of an aural lesion is sufficient to put this center of equilibration into a state of instability, in which a sudden derangement may occur on some slight exciting influence.

The parts of the labyrinth concerned in this action are probably the vestibule and semicircular canals. The cochlea is wholly given up to the reception of sound waves. The utricle, saccule, and the semicircular canals are the parts which subserve the functions of equilibration. These organs contain a special sense apparatus which, by reflex action, serves to maintain our equilibrium during rest

* Read before the International Homeopathic Congress, London, August, 1896.

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and motion. The researches of Goltz and Breuer tend to confirm this view, and further point to the canals as the organs which maintain equilibrium during motion, and to the saccule and utricle as performing the same function during rest. (Static and dynamic sense organs.)

It is well known that diseases other than those of aural origin can produce vertiginous attacks of severe nature. Lesions of organs at a distance, such as the stomach, intestines, and heart, are credited with being the origin of such seizures. The question then naturally arises: In what manner do these pathological conditions bring about the symptoms under consideration? Is it through direct excitation of the co-ordinating center, or is it through a less direct path?

While we are not in a position to answer this question with an absolute degree of certainty, still we have facts at our disposal which tend to point to the intermediate action of the labyrinth in all cases of vertigo not primarily due to intra-cranial disease acting as a central lesion.

The evidence in support of this statement is considerable, and far outweighs that which we are in a position to bring forward to disprove this assumption.

As a basis, then, for the remarks which follow, I would make the following propositions:

1. That in those cases of vertigo not due to cerebral or intra-cranial lesions, the immediate cause of the symptom is a stimulation of the labyrinthine nerves by variations in the intra-labyrinthine pressure.

2. That this variation may be the result of either (*a*) local ear diseases, or (*b*) vaso-motor changes, such vaso-motor changes being brought about by direct or reflex stimulation of the cervical sympathetic.

3. That of all local ear lesions, labyrinthine hemorrhage (true Menière's disease) is one of the least common, and that the term Menière's disease should be restricted to cases of this nature, the remainder being called "pseudo Menière's disease," or spoken of as presenting Menière's complex of symptoms.

4. That for purposes of treatment it is necessary to discover the primary lesion, whether local or vaso-motor, as upon such knowledge the success of treatment depends.

In enumerating the causes which, either directly or indirectly, may cause an attack of vertigo, we may adopt the classification of Woakes, which runs as follows :

1. Alterations of tension, whether + or —, of the labyrinthine fluid. Such changes of tension may be brought about by :

a. Direct pressure due to local ear disease.

b. Reflex vaso-motor changes.

c. A combination of the two above-mentioned conditions, which comprise the great bulk of cases.

2. Intra-cranial diseases which disturb the nerve of the organ of equilibration, and are central in their origin.

To the second class of cases, viz., intra-cranial diseases, I do not propose paying any attention in this paper, and shall only concern myself with those factors of vertigo which come under the three subsections of the first class. Let us take them seriatim.

Increase of labyrinthine tension may be brought about by various lesions of the external auditory meatus. It is obvious that the pressure of a tightly impacted plug of wax, or other foreign body, upon the drumhead will indirectly raise the labyrinthine tension, and thus cause giddiness. Chronic dermatitis of the external meatus may also cause vertigo, only in this case the symptom is brought about in a different manner from the foregoing. It will be remembered that the auriculo-temporal branch of the fifth nerve supplies sensory twigs to the meatus. Irritation of these may cause reflex contraction of the tensor tympani, which is supplied by the nerve to the internal pterygoid (another branch of the fifth nerve) through the otic ganglion.

Contraction of the tensor tympani is not an uncommon cause of vertigo, and may be induced in a variety of ways. Spasmodic action of this muscle occurs occasionally in chronic middle ear inflammation, and to such are referable

those sudden and short-lasting attacks of tinnitus, accompanied at times by transient giddiness, of which so many patients complain.

Experimentally many of us can bring about such an action of the muscle on our own person by a forced contraction of the internal pterygoids, when, by what is termed an associated movement, the tensor tympani will contract and produce a ringing noise, easily perceived when all is quiet.

Apart from the spasmodic action of the tensor tympani, other abnormal conditions of the middle ear can bring about attacks of vertigo, provided they tend to press the stapes inward and displace the membrane filling in the foramen ovale. Thus, retraction of the drum-membrane from long-continued blocking of the eustachian tube; sclerotic conditions of the mucous membrane involving and binding down the stapes: and paralysis of the facial nerve, with secondary paralysis of the stapedius muscle (which it supplies), permitting of the over-action of the tensor tympani, will all produce this effect. Polypi, especially those springing from the inner wall of the tympanic cavity, may, by causing pressure on the stapes, cause vertiginous attacks.

It is conceivable that sudden closure of the eustachian tube, or sudden and extensive exudation into the middle ear, may produce the same symptoms; indeed, Politzer has shown that both these conditions may, in a notable manner, cause vertigo.

Such sudden lesions are, however, the exception; and of middle ear lesions, slowly progressive sclerotic catarrh or a chronic suppurative process are by far the commonest causes of vertigo.

Labyrinthine lesions are necessarily, when they occur, prolific causes of vertigo. It is probable that simple anæmia will in many cases be sufficient to produce symptoms, but it is chiefly in vascular changes in the direction of congestion or inflammation that we find most marked evidence of disturbance of equilibrium occurring.

Sclerotic catarrh of the middle ear seldom long exists without the labyrinthine blood vessels participating in the process. This is accounted for by the fact that the vessels of the inner wall of the tympanum are in direct communication with those of the labyrinth through the bony walls which separate the two cavities. This labyrinthine hyperæmia commonly leads to some increase of the already existing deafness, manifesting itself chiefly through a diminution of the hearing by bone conduction and further predisposing the patient to vertiginous attacks from very slight exciting causes.

Intra-cranial inflammation, especially that associated with cerebro-spinal meningitis, is especially prone to lead to intense hyperæmia of the labyrinth, in the course of which such widespread changes may occur that the labyrinthine structures may be entirely destroyed. In such cases intense vertigo occurs as an early symptom; but owing to the serious nature of the malady, and the rapidity with which unconsciousness supervenes, the giddiness is often transitory in its nature.

The chief lesions found *post-mortem* in such cases are exudation of lymph, or hemorrhage into the peri-lymphatic space. Such conditions are likewise developed in the course of typhus, variola, scarlet fever, and mumps, and a few other similar diseases. Hemorrhage into the labyrinth may, however, occur as an isolated symptom, a lesion characteristic of true Menière's disease, and it is to this condition only that this term should be applied.

I wish to lay particular stress upon this point, as it seems to be overlooked by a large number of the profession, who consequently are apt to report in the various journals cases presenting the symptoms of vertigo, deafness, and tinnitus, as examples of Menière's disease.

A study of a large number of cases thus reported has convinced me that a considerable percentage are traceable to conditions other than apoplexy of the labyrinth, and should not have been reported as examples of Menière's disease. I think this will be clear if we have a knowledge of the origin of this term.

The first case of this nature was reported by Menière in 1861. It concerned a young girl who, in consequence of exposure to cold at the time of her catamenia, became completely deaf, with symptoms of violent attacks of giddiness and vomiting, and who died on the fifth day of the disease. The necropsy showed the brain and spinal cord to be unchanged, but the semicircular canals were filled with a reddish plastic exudation, which extended slightly into the vestibule, the cochlea being free.

After that Menière met with several other cases in which the same group of symptoms appeared, but in none was an autopsy obtained. Since Menière's observations were published, others have reported cases of a similar nature, confirmed *post-mortem*; but there can be no doubt that the disease is far from being so common as the large number of cases reported as Menière's disease would lead us to believe.

Having now discussed the various aural lesions which, by direct action on the labyrinthine tension, may cause vertigo, we may pass on to the consideration of those reflex vaso-motor changes which, according to Woakes, are responsible for a fair percentage of cases presenting Menière's complex of symptoms.

It will be remembered that the labyrinth derives its blood supply mainly from the internal auditory artery, a branch of the trunk formed by the junction of the two vertebrals. These vessels are supplied with vaso-motor nerves from the cervical sympathetic, and it is through the tonic influence of these nerves that the vascular supply of the labyrinth is kept in a healthy condition; and anything which leads, either directly or indirectly, to the disturbance of this sympathetic chain is liable to produce vaso-motor changes in the parts to which the nerve fibers are supplied. By means of such vaso-motor disturbances, variations of the intralabyrinthine pressure are brought about, and vertigo, noises in the ears, and other associated symptoms may appear. As often as not some middle ear lesion is present at the same time, for it is in just these cases—viz.: those showing

imperfect vaso-motor control—that the naso-pharyngeal mucous membrane is in an unhealthy condition and prone to excite inflammation in the ear.

In many of our cases evidences are not wanting of deficient vaso-motor control in other parts of the body supplied by the cervical sympathetic system. Thus, the brachial nerves obtain their vaso-motor supply from the same source, and hence sluggish circulation in the hands and mottling of the arms may occur. In other cases the circulation in the cephalic vessels is at fault, as shown by the sudden flushing of the face which often accompanies an attack of vertigo. In fact, we have only to carefully examine a large number of aural cases to find out that a large percentage of them show evidences of vaso-motor disturbances.

If we now recall the intimate connection which exists between the cervical sympathetic and the vagus, we readily understand the mechanism by which the symptoms characteristic of Menière's disease are brought about by lesions of the stomach and heart; and we clearly see that all those cases which by many are labeled essential vertigo, or *vertigo a stomacho læso*, are but the objective signs of vaso-motor disturbance, brought about reflexly by irritation of some of the terminal branches of the vagus.

I venture to think that a full comprehension of these views will not only clear away a good deal of the haze which surrounds the subject of vertigo, but will also materially aid us in the treatment of our patients.

Treatment.—It is perfectly obvious that when we have reason to believe that the symptoms are being caused by direct pressure of wax, polypi, or foreign bodies upon the drumhead or ossicles, internal treatment will be of little avail until such pressure is removed. Likewise, when vertigo and tinnitus are due to retraction of the drumhead, inflation through the eustachian tube will materially aid us in our further efforts to cure. I do not, however, propose going into the detailed treatment of the various conditions which produce Menière's complex of symptoms, but will

limit further remarks to noticing those drugs which I have found of most service, or which from their pathogenesis we might expect to be of value in the conditions we have been discussing.

Bryonia alba.—For the relief of Menière's symptoms dependent upon a catarrhal condition, whether simple or sclerotic, of the middle ear, I know of no drug which is so generally useful as this one. Even in cases of suppuration, this remedy, together with any other, such as *hepar sulph.* or *silicea*, which may be indicated by the suppurative condition, usually acts efficiently. I am convinced, however, that it is not without an action on the labyrinth, for I have seen it act well in cases of sclerotic catarrh with secondary labyrinthine trouble of high degree. It especially suits those cases in which vertigo comes on when sudden movements, such as getting up from a seat, etc., are made, combined with the presence of the characteristic digestive symptoms of *bryonia*.

I reported a case some time ago in which this remedy alone cured a long-standing vertigo. It was reported as an example of true Menière's disease, but though the concomitant symptoms pointed to a labyrinthine involvement, further consideration has convinced me that the repeated attacks of vertigo were brought about by some sympathetic disturbance. The chief fact pointing to this was the flow of viscid saliva, which occurred immediately before the attack, and which reminds one of the flow of thick sticky saliva experimentally produced by stimulating the cervical sympathetic, contrasting with the thin watery flow on chorda stimulation. It is therefore probable that in this case the vertigo was due to sudden vaso-constriction producing anæmia of the labyrinth, an assumption which receives some confirmation from the fact that on one occasion a dose of glonoine gave immediate relief, though it should be mentioned that this effect was not repeated.

Aurum.—The fact that but little is said in the majority of homeopathic text-books concerning the value of the salts of gold in the treatment of diseases of the internal

ear, leads me to believe that their beneficial properties in such complaints cannot be as widely known as they should.

In labyrinthine disease due to congenital syphilis I have found it of considerable service, and also in chronic nerve deafness of adults. In some of these vertigo was present, and was markedly relieved if not cured. The following case is an example :

A. H., office attendant, aged thirty-two. First seen April 8, 1894. He was then complaining of deafness, noises in the ear, severe attacks of giddiness with sickness. The symptoms had been present for four years. Three years ago had influenza, and since then the deafness had been gradually increasing. The patient says that he lost his sight twenty years ago for six months. Never had any discharge or pain in ear. Tinnitus frequent, both buzzing and like the sounds of the sea. No cough or other lung symptoms ; digestion slightly impaired. No headaches. Sleep good. Inspection of M. T. showed some retraction with redness along malleus handle on both sides. Patient was very deaf to conversation, and tuning-fork tests showed great diminution of both air and bone conduction. No air conduction for lowest two forks (C and C_1), and no bone conduction for highest two forks (C_3 and C_4) on left side ; and on the right side the changes were marked, the loss of bone conduction involving C_2 fork as well as the higher ones, and loss of air conduction involving C_2 also. The diagnosis was, therefore, primary middle-ear catarrh, with secondary involvement of the labyrinth, and Menière's symptoms of recurrent nature, due to occasionally increased intra-labyrinthine tension. Treatment: *Bryonia alba* 3d, two drops every four hours.

April 22.—Improvement intermittent. No appetite, losing flesh. Vertical and occipital headache. Repeat *bryonia*.

May 6.—Slight improvement in left ear, none in right. No attacks of vertigo but great sleepiness. Noises as before. *Aurum mur.* 3d, two drops every four hours.

June 10.—Is very much better as regards hearing in the left ear. Hears ordinary low-toned conversation now. No vertigo. Tuning-fork tests show that those forks which could not be heard before, either by air or bone conduction, can now be heard in

both ears for a few seconds. Repeat aurum and nux vomica 3d, one drop occasionally for constipation.

January 1, 1896.—Patient returned and reported that the improvement in hearing noticed at last visit had been maintained, and he had no attacks of vertigo up to three weeks ago, when he had rather a severe one. This was repeated two days ago. He had not taken any medicine for three months. Examination of hearing power showed similar results to those stated in preceding note. Repeat aurum. The patient was seen again in July last, when he reported that he heard well, and had only one slight attack of giddiness since last visit. He had continued the last prescription for one month only. I noticed that for conversational purposes he used only his left ear, the right not hearing the spoken voice distinctly.

Spigelia.—This is another remedy whose action on the internal ear, or, more correctly speaking, on the auditory nerve, is somewhat similar to, though scarcely so penetrating as, aurum, and which should be thought of in treating nerve cases with vertiginous symptoms. I am indebted for this hint to Dr. Houghton of New York, in whose book on Clinical Otology* reference to a case of auditory nerve disease cured with this remedy will be found.

The ciliary neuralgia caused by this drug is well known to all, and its symptoms indicate that it produces a true neuritis. It seems also to bring about a peculiar sensitiveness of the nerve centers. The sense of hearing is exalted, and it is possible that the vertigo noticed in some of the provings is due to a similar action on the center of equilibrium, rendering slight stimuli sufficient to cause an energetic response. It should further be noticed that it is liable to cause catarrh of the naso-pharyngeal mucous membrane, and thus favor the occurrence of intra-tympanic inflammation.

Pilocarpine.—For some time past I have been using this drug somewhat extensively in aural cases. Politzer was the first to recommend it in serous exudations into the tympanic or labyrinthine cavities. He administered it

* P. 175.

hypodermically in $\frac{1}{12}$ grain doses, gradually increased to $\frac{1}{4}$ grain. By this means its physiological effects were produced (profuse diaphoresis, and some prostration). It is of undoubted value in some cases, and it has been shown that to produce its beneficial effects its administration by the mouth is sufficient. I have tried it in both middle and inner ear diseases with mixed benefit. In some it gave not only increased hearing, but also marked relief to tinnitus; but I have no notes of its having relieved vertigo, though there is good reason to expect such a result in suitable cases. In one very obstinate case of sclerotic middle ear catarrh with secondary labyrinthine disease, but without vertigo (a condition of affairs in which the drug is usually considered to be contra-indicated), it caused marked improvement, though in many others of a similar nature it completely failed. In this particular instance, as was pointed out to me by Dr. Wheeler, my clinical assistant, a leading symptom before its administration was excessive sweating, which is interesting from a homeopathic standpoint.

The dose I usually prescribe is two drops of the 2x dilution of the nitrate of the alkaloid.

Quinine.—As is well known, quinine in large doses produce well-marked aural symptoms which closely resemble those of Menière's disease. In poisonous doses it causes paralysis of the vaso-motor center, dilation of the arterioles ensuing. It is to the increased flow of blood to the labyrinth, thus brought about, that I believe we may attribute the aural symptoms, for ergot, which by its influence on the vessels has a distinctly opposing action, causes their suppression. Quinine and salicylic acid are closely allied in their mode of action, and are distinctly indicated, both upon pathological as well as symptomatic grounds, in true Menière's disease, and of their value in such we have ample confirmation from old-school sources. In simple congestive state of the tympanum and labyrinth, with slight vertigo and tinnitus, they are of signal use, and their selection in individual cases must be made by taking into account concomitant symptoms.

Hydrobromic Acid.—My experience with this drug is very small. It was first introduced to the profession by Dr. Woakes, who considered that its action was opposed to that of quinine, and that it had a specific effect upon the inferior cervical ganglion, increasing the tonic action of the sympathetic, and thus promoting vaso-constriction. He found it gave great relief to headache, tinnitus, and vertigo when given in doses of 20 minims, especially in cases of vaso-motor disturbances of stomach origin. Dr. Winslow* of Pittsburg made a proving of this drug on himself, taking a few drops at intervals during the day until half a dram had been swallowed. Dryness and puckering of the throat were produced, followed by a feeling of constriction in the pharynx and chest. It seemed as though he were about to have asthma, but the breathing continued uninterrupted and rhythmical. The head and face were hot, the brain had a dull ache, and waves of heat rushed over the face and neck, but the skin did not show any increase of vascularity. A decided ringing, non-pulsating tinnitus with slight vertigo on moving the head up or down followed later on in the day. The heart beats were accelerated, and there was some palpitation, and the arms had a dragging heaviness and dull aching which made them seem as though they were not part of the body. He compared the sensations to those produced by a too free use of tobacco. Next day some irritability of the stomach and heart and heaviness of the arms remained, but by the third day pathogenetic symptoms had disappeared. He reports that its use in cases of tinnitus, nervousness, and cerebral strain in drop doses every three hours had been successful in his practice.

The above symptoms show that the drug certainly influences the circulation of the head, neck, and arms—that is, the parts whose vaso-motor nerves are derived from the cervical sympathetic. As before stated, the upper limb receives its nerves from this source, and it is known that venous congestion of any part, such as is brought about by dilated arterioles (vaso-dilation), owing to the pressure ex-

* "The Human Ear and its Diseases," p. 457.

erted on the nerves by the dilated vasa-nervorum, will cause symptoms of perversion of function in the affected parts; such symptoms—we have it on the authority of Woakes himself—being mainly sensations of heaviness, dragging, and dull aching.

It is therefore interesting to note that in the later part of the above proving these identical symptoms occurred, which makes it seem likely that, although the primary effect of the drug may be, as Woakes states, antagonistic to quinine, viz., that of a sympathetic stimulant, if we may use such a term, its secondary or late effect may be exactly the reverse.

There is nothing very improbable in this, as it can be abundantly proved that the majority of stimulants produce secondary depression.

Under such circumstances hydrobromic acid is not very far from being homeopathic to vertigo having its origin in reflex labyrinthine vaso-dilation.

Cocaine and Tabacum.—I have had practically no experience of the use of the latter of these two drugs in the treatment of vertigo, and I have only used the former on a few occasions, and then with negative results; but I should like to say a few words here concerning their action.

Both these remedies exert an influence upon the sympathetic system, especially upon the cervical ganglia. We have already seen that Dr. Winslow compared the symptoms produced by hydrobromic acid to those of tobacco poisoning, and anyone acquainted with the provings of cocaine will be struck by a similar likeness. The first symptoms noticed are usually the peculiar sense of constriction of the throat, and feeling as though asthma were impending; and the later labyrinthine and other symptoms likewise correspond.

There can be no doubt that the primary action of cocaine on the unstriped muscles (which are mainly supplied by the sympathetic system) is one of stimulation, as is shown by its action on the eye. Here it not only causes dilation of the pupil (the evidence of which is equivocal, as we are not

in a position to say whether dilation of the pupil is brought about by the action of a true dilator, or is the result of a relaxing or inhibitory influence of the sympathetic on the contractor muscle ; an action having a counterpart in the accelerator and inhibitory influence on the heart of the sympathetic and vagus nerves respectively), but we also find that it causes enlargement of the pupillary aperture owing to the contraction of the involuntary muscle of Müller in the lids, and some amount of protrusion of the globe from contraction of the unstriated muscle covering the speno-maxillary fissure. The secondary effect of cocaine is, however, one of intense depression and vaso-motor paralysis, causing feelings of weariness, fullness of the head, slight deafness, ringing in the ears, giddiness, and much restlessness.

We see then that there are several drugs which are homeopathic to the condition of vaso-motor paralysis, which is, as we have seen, a common cause of Menière's symptoms, and I think that they would repay a careful study. Of their provings we have many excellent examples ; but what we most need is the narration of cases cured by their means, and I shall feel that this paper has not been written in vain if it arouses the interest of my colleagues in some medicines which in my opinion have been hitherto insufficiently used for purposes of treatment.

PERIPHERAL IRITOMY IN CERTAIN CASES OF SECONDARY GLAUCOMA.*

BY DR. A. ANTONELLI, NAPLES, ITALY.

THIS is not a *new* operation. I would not dare to dignify in that way a surgical method so simple that some among our *confrères* may already have thought of and practiced it, but which at any rate does not appear in classical treatises nor in the latest memoirs of surgical ophthalmology.

The recent operations for glaucoma—incision of the tissue at the angle of the iris, according to my first and most excellent teacher, Professor de Vicentiis, and analogous surgical methods—have confirmed the enormous importance, as a cause of glaucoma, which the obliteration of the lymphatic channels at the periphery of the anterior chamber presents. They demonstrate also that the opening of these paths of elimination obtained by Vicentiis' operation, by sclerotomy or even by simple teasing of the pectineal ligament, constitutes the true mechanism of the most efficacious surgical interference in glaucomatous affections.†

These facts gave me the idea of *peripheral iritomy*, which I practiced for the first time in the following case :

A young workman, twenty-four years of age, Ant. Cr., came to Dr. Landolt's clinic, April 3, 1895, for a recent ulcer of the left cornea, accompanied by very fetid ozæna and an old lachrymal conjunctivitis. In spite of the most energetic and assiduous care,

* Original trans. from *Rev. gen. d'Ophthalmol.*, No. 9, 1896.

† Vicentiis, "Sur la soi-disant sclerotomie interne," *Rev. gen. d'Ophthalmol.*, p. 440, 1895.

and probably on account of the very grave infectious ætiology, the ulceration increased in depth and breadth and became complicated with an irido-cyclitis. In about eight days there was an amelioration of all the symptoms.

On the 23d of the same month, the patient left the clinic with a staphyloma well on the way toward cicatricial organization, leaving only a peripheral temporal segment of the cornea unharmed. Toward the end of July the primary symptoms of secondary glaucoma had already appeared with the staphyloma almost complete and very prominent. On the 3d of August the pain was severe and the tension very high, and a scleral puncture was made in the infero-temporal equatorial region. After a period of relief it was necessary, on the 27th of August, to repeat the operation; but during this lapse of time the staphyloma had become very ectasic. On the 11th of September, the pain and other glaucomatous symptoms not subsiding, the operation of staphylectomy was performed according to Critchett's method. The operation was most successful; the lens remained in place behind the three needles and, after having tied the sutures, the volume of the bulb was at once that of a normal eye. The cure was very rapid, the stitches were taken out in about six days, and the patient did not return to the clinic for some time.

He came back in about six weeks with new glaucomatous symptoms, pericorneal injection, and pain which was very sharp on that day and the next. The tension was somewhat increased ($T + 2$), but the shape of the globe was the same as after the operation. The cornea presented an almost normal curvature, rather flattened, with a vast leucoma adherens, sparing only the temporo-peripheral portion of the membrane in the form of a semilune from two to three millimeters in size. It was then that I had the idea of disengaging this segment of the iris, which could be seen held between the periphery of the anterior chamber and the staphyloma. I used a slightly curved sclerotomy knife with a double edge, which I introduced in the sclero-corneal region almost perpendicular to the surface of the globe but slightly oblique, as if the knife were to skirt the inner surface of the ocular bulb. I passed the point up to the tissue of the iris, hardly through it, and, carefully keeping the knife in the same position and at the same depth, I carried its point along the periphery of the iris, from above downward for a distance of

5 or 6 mm. Nothing escaped from the small wound, it healed rapidly, and after the operation there was hardly a sign of change in the tissue of the iris behind the slender shred of relatively transparent cornea. But, since the *peripheral iritomy*, the eye has given no pain, and the patient has been able to preserve a very slightly deformed ocular globe and has avoided an enucleation which we had determined upon had the iritomy failed.

Here is another case, very similar, in which a corneal ulceration following purulent ophthalmia had resulted in a partial staphyloma of the center of the cornea. This appeared to be of conical form like a shield, the summit presenting, in the superior nasal paracentral zone, a little entanglement of the iris (myocephalus). Along the periphery of the cornea, which was comparatively transparent, a glimpse could be obtained, above and below, of 3 or 4 mm. of the diaphragm of the iris.

The patient, a young American, had, in October, 1895, his first attack of glaucoma of the left eye, characterized by intense pain and a very high tension. After a scleral puncture and large doses of myotics, the eye gave but little trouble until May, 1896.

At this time, the staphyloma having become very prominent and the glaucomatous symptoms having been reproduced, I performed Critchett's staphylectomy under the best conditions and with a most satisfactory plastic result. In a few weeks new glaucomatous symptoms appeared, no pain, but pericorneal injection, lachrymation, and elevated tension. On June 14 I performed a peripheral iritomy, extending on the upper side for 3 mm., and on the lower 5 or 6 mm., and since that time the eye is in very good condition waiting for a tattooing which will complete the cosmetic result.

I may be excused from writing of other cases more or less analogous, and I would not insist upon the technique of the operation that I have indicated in my first case, which may be modified among other things according to the choice of instrument and the method of using it.

I chose these cases from among others for a reason

which seems to me very important; *the continuance of the secondary glaucoma after staphylectomy.*

It is true that if this operation has been more beneficent among my patients, and if, as a consequence, it has been followed by very considerable modifications in the anterior segment of the bulb, the atrophy of the organ would probably have compensated for the new glaucomatous troubles. But, truly, the operation performed by Critchett is more likely to reduce the normal form and volume of the ocular shell than to obtain a stump. In my two patients I could hope for nothing better as a plastic result of staphylectomy. We could have hindered the continuation of the secondary glaucoma, and peripheral iridotomy alone permitted us to avow a more radical final intervention.

Moreover, it is easy to understand that the excision of the staphylomatous band along the horizontal meridian, using Graefe's knife and then the scissors, would not change in any way the condition of the periphery of the iris. After cicatrization, the tissue of the pupillary zone of the iris which remains adherent to the cornea would have a constant tendency to stretch the ciliary zone of the diaphragm of the iris.

This condition, which is a frequent cause of secondary glaucoma, may be very much modified by *peripheral iridotomy* when the first signs of glaucoma have appeared and before any other operative intervention.

In case of partial staphyloma or a certain extent of leucoma adherens, a *preventative peripheral iridotomy* could equally well be made at just the proper point, that is, when the iris is best seen, upon a large band in juxtaposition with the more or less translucent corneal periphery. This operation is without danger. It is a better operation in those cases when the iris, detached at its base, becomes retracted toward its adhesion to the pupillary zone, for it permits the formation of an artificial pupil, by iridodialysis, which it would be difficult to obtain after any other operation.

It goes without saying that, when the anterior chamber

is more or less preserved, when the lens is not much displaced and where an optic rather than an antiphlogistic or antiglaucomatous operation needs to be undertaken, the proceeding of radial iridectomy or iridodialysis, with the introduction of the *pince-ciseaux*, will always be better indicated.

The *iridectodialysis* of Bowman* is demanded in exceptional cases, generally more favorable in character than those for which we recommend the simple operation of *peripheral iridotomy*.

ON CERTAIN FORMS OF DEAFNESS AND THEIR CORRESPONDING REMEDIES.†

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A GATHERING like the present ought to be taken advantage of in order to consider the difficulties that beset the path of him who endeavors to cure obstinate diseases, as well as to consider the successes that attend his efforts.

That the diseases of the ear present for treatment many difficulties goes without saying, but it is equally evident that difficulties are not impossibilities, and that the former exist only to be removed.

Boldly let us study the hindrances to cure, and unflinchingly determine to remove them.

There are some points in which the ear, as a therapeutic study, possesses great stumbling-blocks to a system based upon the cure of disease by means of reliance upon the symptomatic indications.

There are, as we know, many dyscrasiæ which affect the general system, and which are known to influence every

* Dr. Wecker and Landolt, vol. ii. pp. 392-397.

† Read before the International Hom. Congress, London, August, 1896.

organ of the body, and that the ear is thus influenced follows as a matter of course.

It is, nevertheless, a very remarkable fact how little the ear is differentially impressed by such powerful poisons as cancer, scurvy, syphilis, malaria, not to mention the fevers themselves.

Let me be clearly understood. It is not that these morbid agencies that infect the general system are incapable of affecting or fail to affect the ear, but that they leave upon the ear an influence, the peculiarity of which cannot be said to be so readily diagnosable as when the same morbid tendencies are diverted to other organs.

Take, for instance, one of the commonest forms of ear affection, where deafness has been produced by a gouty tendency in the system. It would be difficult for anybody to say in what way that particular form of deafness differs from other deafness in which there is no gouty tendency present.

I do not for a moment say that there may not be appearances connected with the ear denoting a gouty disposition—all of us are aware of the contrary. What I do say is this, that the symptoms that gout produces in an ear are precisely like to the symptoms that are produced in the same organ in many other ways.

Cancer, too, when it affects the ear, may present characteristic appearances of the membranes, but its symptoms are very much like those produced by other causes; and, again, a like remark applies to secondary and tertiary syphilis. Every treatise on syphilis dwells at great length upon the way in which the throat, the nose, the skin, etc., are affected, but the amount of attention syphilographers allot to the ear, as a rule, is very little indeed.

The obvious reason is that not alone are the symptoms produced by this particular miasm upon the ear not characteristic, but it is even difficult to determine from the local appearances whether syphilis has been in operation in producing them.

If it be difficult for a disease to stamp its characteristic

symptoms upon this organ, it is natural to suppose that it is equally difficult—nay, very much more so—for medicinal agents, when taken into the healthy body, to affect the ear in such a way as to render the disturbances thus created characteristic of any particular remedy.

In treating disease we are dependent for our choice of remedies, as is well known, upon the characteristic symptoms; that is to say, the symptoms that are characteristic of the particular remedy that we happen to be prescribing.

This absence of a characteristic disturbance is one of our great difficulties in dealing with the ear. There are many others, which from time to time I have dwelt upon in other writings, but which at present I need not stay to consider.

Notwithstanding the difficulty in obtaining characteristic ear symptoms by pathogenesis alone, it is, nevertheless, a valuable aid; and I find that by bringing into prominence the experiences derived from a large amount of clinical observation I can single out certain groups of aural symptoms which, with fair uniformity, succumb to the administration of certain remedies, and which, if considered in groups, may be taken as characteristic of these remedies.

It will be a useful occupation for the space allotted to a paper to consider some of these groups of symptoms in connection with the remedies.

The first group, with its indicated remedy, that I wish to take up is met by an old friend to homeopathy, *calcareo carbonica*.

One form of deafness that characteristically calls for *calcareo* is very obscure as far as its pathology goes.

The deafness is one of child-life, and the cases that I have met have been chiefly in boys and girls from infancy to fourteen or fifteen years of age. The history is very uniform. The parents invariably describe the patient as never having heard really well. Their statement is that there has always been a certain amount of deafness present, and that they never remember the child to have heard perfectly.

The history, in fact, given is that the child has been deaf

since birth. These patients present nothing remarkable in their appearance. They are not always the characteristically stout and flabby children, whose complaints are so well met by calcaria; as often as not they are spare and wiry.

On examining the ear we may find that calcareous deposits exist on the tympanic membranes, but as often as not the appearances of these are normal, and the nasopharyngeal mucous membrane is in a fairly healthy state, and there is no enlargement of the tonsils, or there may be a slight amount of adenoid growth in the posterior nares.

There is, in fact, a great absence of symptoms of any kind. The tuning-fork is heard fairly, and the watch at about fifteen to twenty inches on both sides. In fact, the two great points in connection with these cases are—first, the history of the case, dating, as far as the parents know, from birth, and the watch hearing not being very defective.

These two features constitute with me an indication for calcaria, and it may be my good fortune to have met none but curable cases, for at all events I have never yet been disappointed in its action.

The deafness clears away in a most magical fashion when a high solution of calcaria is given, often in a few weeks. Of this particular form of deafness it may be truly said its pathology is obscure, and its symptomatology does not exist.

If to these two features be added a tendency to excessive perspiration of the scalp at night and of the feet and hands by day, to general sensitiveness of the skin, to cold night sweats, and to constipation and acid diarrhea, with enlargement of the long bones or suppurative diseases of bones, we may expect that calcaria will be all the more called for; but, as stated, these were conspicuous by their absence in the cases treated by me.

No one can be considered a successful treater of children's ailments who withholds the precious benefits of that infantile remedy, calcaria carbonica, and it is a matter of astonishment to me to be told by homeopathic chemists that it seldom enters into the prescriptions that come to them.

As civilization advances there is a growing tendency to maldevelopment of the lower jaw ; this is seen by the great narrowness of the anterior angle of the jaw as well as by an apparently insufficient size of the rami of the jaw itself ; the consequence of which is that the jaw is not sufficiently capacious to contain the teeth while growing, without there resulting an amount of pressure upon the alveolar processes during dentition that reflects its influence on the entire nervous system.

This is a most fruitful cause of nervous disease in child-life ; and that brain disturbance—chorea, epilepsy, and other severe systematic derangements—are often due to it I have not the least doubt.

In rectifying imperfections of growth of the body, particularly the growth of the bones, there is probably no agent of greater usefulness than calcarea.

The deafness that accompanies enlarged tonsils, especially in light-haired children, coupled as it is very often by post-nasal growths, finds a very efficient help in calcarea phosphorica in the 3d trituration, as I pointed out many years ago (1869) in the *Monthly Homeopathic Review*.

These cases are not infrequently accompanied by the presence of lumbrici or of ascarides in the intestines, and frequently patients have recorded the passage of such after a few doses of this calcarea phosphorica.

I do not wish to dogmatize regarding the ætiology of these post-nasal adenoids, to which so much attention has been paid since Meyer of Copenhagen drew attention to them in 1861, but to my mind there are two factors at work in their production : the first is the state of the teeth, for they appear with greatest frequency when the permanent molar teeth are coming ; and secondly, a scorbutic disposition, for they certainly, in my experience, predominate in children who have a distaste for all kinds of vegetables. Both these causes are at work in the majority of cases, and calcarea phosphorica, even in our 3d dec. trit., probably acts as a tissue remedy ; and when its beneficial action stops short, as it sometimes does in obstinate cases,

the interposition of staphisagria or of *agrapis nutans*, prescribed in single doses, and in accordance with the prevailing symptoms, is attended with the most happy effects. At all events, I must protest against the indiscriminate resort to operative interference in all these cases; enlarged tonsils, post-nasal growths, and elongated uvulas are among the most easily cured chronic affections known.

Turning now to another group, we find it met by our old favorite, *hepar sulph.* This definite ear trouble finds in it a most efficient remedial agent. From the time of Hahne-mann to the present, *hepar* has not only been used, but has been esteemed a most precious agent in the treatment of purulent middle-ear catarrh; it is a remedy that I very often have prescribed, and with extremely good effect.

The power of *hepar* to lessen the discharge is perhaps its least recommendation; it is in restoring the hearing that *hepar* shines with such brilliancy, the indications for it being plain, simple, and definite, namely, a carious condition of the tympanal cavity, with a history of scarlet fever and a most fetid discharge. Given a history of scarlet fever, a perforation of one or both membranes, a purulent discharge, and a deafness that is really pronounced, and we have a group of indications that can be proved to be reliable, and that calls for *hepar*.

I have not been able to satisfy myself that this deafness is really characterized by being better in a noise or not, and the amount of tinnitus present is, as a rule, not great.

Of course *hepar* proves successful in the treatment of aural furunculi and other more recent affections; it is in the above-described pronounced and more advanced condition that I wish to draw attention to its proved utility.

Magnesia carbon.—Another group is met by one of our old remedies. Its ear maladies contrast in every way with calcarea; the bulk of the calcarea cases are to be met with before fourteen years of age, and belong to both sexes; but *magnesia* is applicable to all ages, and principally, but by no means solely, to the female sex.

Magnesia carbon. exerts its spell over sensitive, broken-

down women, especially those who have lived a hard life and have had to struggle with the difficulties of life unaided by, or suddenly deprived of, their natural supporters; I have found the poor women workers from the east end of London derive especial benefit from it.

The symptoms that call for it are a sense of numbness in various parts, a feeling of nerve prostration, and a sensitiveness to the least start, such as touching the body suddenly, loud noises, etc. A history of mental shock or severe nervous strain, and shocks from drowning, or that caused by lightning, specially suggests it, as well as a pronounced tendency to constipation.

The ear symptoms it meets are a considerable amount of deafness that has come suddenly, that has from time to time varied remarkably, and in which there is much numbness of the outer ear, a sense of distention in the middle ear, and a dullness, not always easily discernible, in the receptive powers of the brain.

The patient seems rather dazed, and to be slow in replying and slow in calling to mind past events.

Then there is sometimes a good deal of subdued tinnitus, a tendency to toothache and headache at the catamenial epoch, and severe dysmenorrhea, with or without a lessened power to hear the tuning-fork.

In fact, I do not hesitate to say that, as an alleviator of pain, magnesia carbon. in high dilutions is as much undervalued as is magnesia phosphorica over-valued.

If anyone doubts the efficacy of a high dilution, he has only to watch the way in which the constipation of neurasthenic suffering ceases under its use.

Magnesia carbon. indications are full and sufficient, those of magnesia phosphorica scanty and not always reliable.

The deafness of magnesia carbon., though great in degree, is not deep-seated; it is not due to inflammatory changes, involving stiffening and thickening of the ear structures, but is rather a neuro-paralytic affection. It is this purely nervous deafness that sometimes succumbs to electricity, and which has led to an over-estimation of various forms of electricity as remedial in deaf cases.

Magnesia phosphorica enjoys with magnesia carbon. a power over constipation due to inertia of the bowels in rheumatic subjects, greater than it has hitherto been accredited with, and in sleeplessness due to indigestion and flatulence it often acts most satisfactorily. The persistent nervous depression of young girls I have seen to succumb to it.

A sense of distention as well as of numbness calls for magnesia carbon. In a case now under treatment the 200th has removed a feeling of distention in both the head and chest in a woman of forty-five, who has suffered much from grief and worry, and in whom there was present more of a catarrhal tendency than I usually associate with magnesia's action.

The symptom found in Hahnemann's "Chronic Diseases," "two wisdom-teeth made their appearance," is very interesting, for I have found magnesia carbon. particularly useful when the wisdom-teeth are by reason of interstitial pressure causing deafness. This is a point upon which I wish to express myself guardedly, as the change effected may not at all be due to the remedy, seeing that the source of disturbance is liable to shift without any extraneous aid. My statement in favor of its utility is, however, dependent upon a large number of cases, and the matter has been before my mind for some eighteen years.

Ferrum picricum.—Among the undoubtedly valuable addenda to our remedies in ear cases stands prominently forward ferrum picricum. The very mention of it calls to mind so many allied remedies, notably hydrastis canadensis, sanguinaria canadensis, and calendula officinalis, that I feel uncertain whether its consideration might not better be deferred to another occasion. There is certainly one feature in the action of ferrum picricum that renders the mention of it almost a necessity. This is its power to complete the action of other remedies. For example, I had under me a case of catarrho-vascular deafness that had been going on some fifteen years, in which calendula acted with the most charming effect, the impairment of hearing disappear-

ing in every way satisfactorily, but in which the symptoms kept returning more or less frequently. The patient kept coming to me for his favorite remedy, and both he and I felt very disheartened at his hearing not keeping right. I then bethought myself of ferrum picricum, which I gave in the 3d dec., and the hearing at once improved, and has, I have every reason to think, remained perfectly good these five or six years.

The symptom that calls specially for ferrum picricum is the falling off of an organ's functions under exertion; the voice falls off after speaking in public (*Homeopathic World*, April, 1889, p. 153).

Parenthetically I must be allowed to state, however, that the calendula case just referred to was treated by repeated doses, and not by a single dose of the drug, and that it is exceptional to get such a very good result in old ear cases from repeated doses of any drug.

Picric acid is also a very useful remedy in ear cases, and its great utility undoubtedly is in the treatment of nervous deafness where there are singing noises that come on when the patient is fatigued by unusual exertion, while with ferrum picricum the functions of the organ drop off during ordinary work; the basic pathological change that characterizes ferrum picricum cases is diffused vasculitis, and where symptoms pointing to the liver or to any other of the solid viscera are present; whereas picric acid cases are those of nervous deafness, the patients being neurasthenic, and not the subjects of diagnosable involvement of other organs. As an aggravation from picric acid we get a queer sensation as if in overpowering air, with a weak feeling and a noisiness of the entire head, after which the limbs and eyelids twitch, the head and the jaw feel stiff, and the throat feels dry. Picric acid suits the blonde better than the dark-haired; ferrum picricum confines its benefits to the dark-haired alone.

In old Indian officers who are full-blooded, with very sensitive liver and yellow conjunctiva, and where there is irritability of the rectum or prostate gland, giving rise in

the former case to too frequent evacuations, and in the latter to constipation, the ferrum picricum acts with telling power; the more plethoric the patient and the more sensitive his organs the more necessary it is to give the ferrum picricum in high dilutions, and care must be taken that its aggravations do not deter us from giving it a fair trial. Ferrum picricum often aggravates, giving rise to giddiness and disturbance of the brain circulation, with pain in the back of the head and inability to walk; also restless sleep and most unpleasant dreams, often of an erotic nature; pain in the right side of the neck extending to the back of the neck and down the right arm is characteristic: such symptoms call for temporary discontinuance, and not for cessation of the remedy.

In diseases of the heart the ferrum picricum acts with great power, the special indication for it being a great weight and sense of heaviness in the chest, sometimes as if a lot of iron nails had been eaten, as a patient expressed it, with intermission of the pulse, or an irritability of the heart that shows itself on exertion, with indigestion and a foul tongue.

Dark-haired, bilious-looking patients with skin discolored as if from bile, especially patients subject to xanthelasma palpebrarum and yellowish discoloration of the eyelids, or even dark circles round the eyes, are especially suitable, should their other symptoms correspond, for ferrum picricum (*vide* case of catarrhal deafness, *Homeopathic World*, November, 1888).

I have pointed out its special applicability to epithelial growths, to corns and warts (*vide* "Corns on Feet," *Homeopathic World*, June 1, 1887, and again ferrum picricum in "Warty Growths," *ibid.*, January, 1888). Such alterations call for it especially if of yellowish discoloration, or if the parts surrounding them are similarly discolored and if the patients are dark-haired.

At one time I myself was in the habit of taking pretty frequently five or more drop doses of ferrum picricum (one to fifty solution), and during this time not only did

some small corns on the souls of my feet disappear, but the ordinary cuticular thickening on the outer flexures of the little toes, that had lasted within memory and had been looked upon as a normal condition, disappeared, and has not returned for some ten or twelve years. This sentence was hardly written when a gentleman of from sixty to seventy years of age and very deaf, and who had been prescribed for by me some two or three years, volunteered the statement that he had, since coming under me, lost a more than usually large and painful crop of corns that used to reappear almost as fast as he got them cut away, and that gave him at times excruciating distress: and this result, there is every reason to believe, short of absolute proof, was in consequence of his having taken prescriptions from me of ferrum picricum.*

I may appear to trespass from my legitimate specialty, but the action of ferrum picricum is too interesting and far too valuable to allow of my omitting some symptoms that may be found as concomitants in any ear case.

Such, for instance, are the urethral and the vesical symptoms; I have noticed, as produced in a woman taking it, heat and burning all along the urethra, and in another it caused to disappear an irritation which existed similarly all along the urethral track; while its effects on the prostate gland and attendant constipation find illustration from a case reported by me of laryngeal catarrh and deafness in the *Homeopathic World* of April, 1889, p. 153.

The deafness that comes on in women before the monthly period, and is noticeable only at these times, calls for ferrum picricum; and if the deafness is accompanied by a crackling in the ears and an abnormally low-pitched voice, it is all the more indicated; while an abnormally high-pitched voice, owing to blocked eustachian tube, calls for hydrastis canadensis, and one normally pitched, *cæteris paribus*, indicates aloes.

The menstrual symptoms that are met by it are pain,

* See *Transactions International Homeopathic Convention*, Basle, 1886, art. "Ear Diseases and Gout," *re* gouty corns on feet, p. 163.

sickness, and chilliness at the commencement of the illness, and backache with ringing in the ears, and a sense of constant tiredness and depression of spirits, with a weakness that seems to go to the tips of the fingers. The constipation produced by it is generally accompanied by thirst.

Kali hydriodicum.—The next group of ear cases comes under the sway of kali hydriodicum.

I have been taken to task more than once for recommending kali hydriodicum, used in high dilution, for noises in the ears; it is said that it does not produce them. My answer to this is that I have been led to use it entirely by finding its dilutions to produce tinnitus in patients who were taking it. The character of the tinnitus that kali hydriod. produces is very varied, but that form that I myself imagine to be typical of it is expressed better by the French word *agacement* than by any word I know of. A patient taking the thirtieth, and in whom a silent deafness was present, complained to me that while under its influence, taking it thrice daily, a noise as of a saw working its way through stone distressed him. It disappeared immediately he left it off, to reappear on two or three occasions on resuming it. This I consider eminently characteristic—a form of tinnitus that is evidently due to a sensitive condition of the periosteum of the alveolar sockets, and which renders the dental nerve sensitive; hence this grating noise, even in the absence of impressions from without.

Periostitis, with or without pyorrhœa alveolaris, is one of the commonest accompaniments, and is, I believe, the initial lesion in many cases of chronic ear disease. That it may give rise to silent as well as noisy forms of deafness is reasonable, and that kali hydriod. is an inestimable remedy for this pathological condition, used in the thirtieth dilution, I have often and often found. Of this there can be no reasonable doubt, and that in the improvement of the initial lesion the accompanying symptoms disperse is, to say the least, a well-attested supposition.

The noises that disperse under kali hydriod. are, besides

this grating, a hissing, singing, or buzzing with sharp shrill sounds, in contrast with the throbbing pulsating noises that are synchronous with the pulse. But the chief characteristic is not so much the character of the noises as the fact of their being made worse by a combination of different causes. For example, a cold dry northeast wind, a damp condition of the air, and a sense of tiredness or fatigue, or of worry or of excitement, will all contribute to increase the distress in the same patient. So that a combination of conditions causing aggravation, no one of which is in prominence, constitutes a keynote for its administration. There is sometimes felt a dull headache with stabblings inside the head, sometimes going from one ear to the other, and in children there is a decided meningitic tendency; the least movement increases the pain, and the child bursts out into a perspiration when crying, and every part of the body seems tender. He dislikes being touched, and is peevish. In children the sound of ringing bells is a frequent symptom, and calls for *kali hydriod.*, while the pulsating tinnitus is met by *belladonna*.

This diffused tenderness, whether in child or in adult, whether confined to one organ or affecting the whole body, is characteristic of *kali hydriod.*, a special keynote being tenderness of the hepatic region, with or without sick headache after a railway journey or after any fatigue.

Brushing the teeth or firing off a gun gives rise to earache or to tinnitus, and this too characterizes *kali hydriodicum*. Great retraction of the gums or falling out of the teeth also calls for it, and I also incline to believe that we have in it a remedy for a very obstinate form of deafness which is always greatly increased during the act of mastication.

The deafness of *kali hydriod.*, however, is not nearly so pronounced as that of quinine, but except for this in its high dilution the action of *kali hydriod.* approaches much more nearly to quinine than one would suppose. For instance, a patient taking *kali hydriod.* 30th, told me it produced a sense of astringency—a “sour cramp,”

as she expressed it—in the lower jaw, as if she had been eating alum, and a difficulty of mastication as if the jaw were partially locked, exactly like what she has experienced whenever she takes quinine, only with quinine the whole head is affected and much deafness is felt, which is not at all the case with kali hydriod.

I have among my notes this extract from the *British Journal of Homeopathy*, October, 1883, which I believe was taken from one of the American journals: "S. W. Rutledge took 30 grains of kali hydriod. In two hours tingling pricking sensation, with violent sneezing in paroxysms; would sneeze four or five times every ten minutes; nostrils alternately occluded—first the right, then the left. Great heat in the nasal sinuses. Discharge from the anterior nares very acrid, with excoriation. Excruciating pain in maxilla and teeth; great stiffness and immobility of the jaw. At 7 or 8 P. M. great difficulty in respiration. 'The heart seemed unequal to the task of circulating the blood'; pulse heavy, slow, irregular. Difficulty in going upstairs. Crackling in the right ear when attempting to swallow. About 2 A. M. sounds as of rain falling on the roof, 'and,' he says, 'I insisted it was raining'; sounds as of a river sweeping by; faint sensation in the stomach; headache in the back of the head and pain in the lumbar region." These symptoms are, I see, incorporated in Allen's "Handbook of Materia Medica."

Here, then, is as clear and definite a proof as can be desired that kali hydriod. does produce noises in the head. In this proving its action on the lower jaw is very interesting, and confirms the testimony of my lady patient, "great stiffness and immobility of the jaw." The crackling of the right ear without deafness is also noteworthy, while the pain across the back of the head is an almost invariable symptom in inflammatory disturbance of the cells of the mastoid process and adjoining bone.

A keynote to the selection of kali hydriod. is "much ear symptom without deafness."

Probably deafness, as above stated, can be produced

and can be cured by kali hydriod., but this deafness must be an indirect symptom, and the possibility of its occurrence as a pure drug effect is by no means satisfactorily proved.

This keynote—much ear symptom without deafness—finds beautiful illustration in the case of a well-known American colleague who came to consult me in June, 1893, suffering from attacks of giddiness, together with most distressing and constant noises in the head, but without deafness. The noises went on all day and worried him beyond measure. For two years he had suffered in this way, and as his age was sixty-nine and the symptoms had taken a firm hold upon him, my expectation of being able to cure him was not very great. This is the note I took :

Constant buzzing tinnitus, worse in the left ear, off and on for two years; came on with giddiness and constant eructations with flatulence, of which he has had two or three extremely bad attacks; the tinnitus is aggravated after sleeping and excitement. Our friend had all kinds of advice and of medicine, but nothing had touched his complaint. The case struck me as a very bad one, and I told him plainly there was only one hope, and this was to let the indicated remedy expend itself in the system. For this purpose I gave a dose of kali hydriod. 30th, and asked him to let me know at the end of six weeks or so how he was getting on, and particularly cautioned him against expecting any result before the termination of this interval. In the meantime he went back to the States, and after three months sent me the following testimony: "You may remember," he writes, September 12, 1893, "that I consulted you on June 6 for '*Tinnitus aurium*,' giddiness, etc. You gave me one dose on the tongue with a request that I should report at the end of six weeks or two months. I have to apologize for having waited three months before letting you know the result. . . . For a month after I saw you there was no perceptible change, but at the end of six weeks there was marked improvement, and at the expiration of two months it had entirely disappeared and has thus

far not returned. For this relief I feel most grateful, and beg to tender you my most sincere thanks."

On coming to thank me, as his daughter did later on, she told me that their household, from being a pattern of domestic happiness and comfort, had been rendered miserable by the wretched, unrestful, and fidgety state into which her father had drifted, and from which there did not seem to be a possibility of release. It was therefore, she said, extremely gratifying to discover a treatment that had so marvelously benefited him.

Headaches, with buzzing in the head that come on when lying down, find their remedy in high dilutions of this drug as well as when the noises begin after rising in the morning.

These settled miseries cannot get well at once, and the frequent repetition of remedies which have for their object the direct cure of the disease is worse than useless. When mere palliation is sought for, repetition may be enjoined, and may, in fact, possibly be commended; but palliation is not the object of homeopathy, and the constant seeking after it is certainly destructive to the best interests of scientific medicine.

In one respect I have had great gain from resorting to palliation in the treatment of ear disease. This is particularly so with kali hydriod., the high dilutions of which, the 30th and 200th, undoubtedly exert a palliative action upon painfully sensitive ears, very much like that accredited to kali bromid. in material doses in other affections. For example, persons living in the midst of noisy surroundings or amid machinery, and who suffer from their ears being weak and sensitive to all shrill sounds, derive the greatest comfort from frequently repeated doses of kali hyd. 200th, and a like effect is exercised by the same dilution of kali brom. I cannot explain why this should be so; I simply record the fact.

Unsatisfactory from a second remedy having been given, but of immense practical import, is the case of a watchmaker, aged thirty-three, a dark-haired, plethoric man, who

consulted me in January of this year for deafness, which had gone on for five or six years in spite of treatment at two special ear hospitals, and has been rapidly getting worse the last twelve months, together with a constant hissing tinnitus, both of which symptoms are worse in damp, heavy weather, and improve when the air is bright and clear. Hearing is best in a noise. Beyond that he dreams a good deal at night (from the noises?). Inquiry elicits no other symptoms or family tendency to account for it. The right tympanal membrane over malleus handle is suffused; otherwise both membranes are anæmic and thickened. Prescribed calendula off. $\frac{1}{2}$ A., and in three days to begin with kali hydr. 30th, two pills thrice daily.

In a fortnight he reported his ears felt clearer the same evening, and that he had gone on improving so much that he had heard every word three days back in the same theater where, before coming to me, the performance had been completely shut out from him.

The W. Hrg. had gone up from $2\frac{1}{2}$ in R. and 3 in L. to 7 in R. and 8 in L. In this case improvement set in much sooner than is usual in vascular deafness.

To follow up this case. About two months after above report was taken I found this man again deaf, and at once suspected something wrong. He had in error gone on with the kali hydr. This of course I stopped, and a fortnight after found him hearing conversation perfectly. *The repetition of the kali hydr. 30th had been keeping him back.*

I have given a summary of the actions of the most important homeopathic remedies upon certain obstinate affections of the ear. These remedies are selected remedies, and the diseases of the ear for which they are recommended are but varieties of a large class of aural affections. They are, in fact, nothing more than interesting selections.

Science, humanity, the cause of truth, the cause of all that is just and good, require us not to rest contented here, not to stay our hand. The obstinate and universally

diffused gradually developing deafnesses—those cases which go under the term of stiffening and thickening of the mucous membrane of Toynbee, the proliferous catarrh of Roosa, or, as I have described them, the vascular deafnesses—present an obstinacy and rebelliousness that in spite of pathology cannot be allowed to sink into the slough of despond by those who profess to advocate a system for the better treatment of disease.

Fact after fact conspires to make me believe that these cases are not hopeless, however obstinate and tedious their treatment may be; and if I hesitate to enter upon such a subject on such an occasion as the present, it is because it would require for its elucidation a more lengthy handling than could reasonably be asked for, or than I imagine would be desired. Suffice it to say that remedies must be allowed to act in nature's way in the system; the single dose must be permitted to exhaust itself before a second is administered, and this especially so of our plant remedies, or else chronic deafness will ever remain a bugbear and a stumbling-block to him who endeavors to cure it.

PAPILLOMA OF THE LARYNX.

BY DR. CHAS. E. TEETS, NEW YORK CITY.

OF all the growths met with in the larynx, papillomata are by far the most frequent.

Morell Mackenzie states that sixty-seven out of a hundred are of this nature, fibromata being next in frequency. In consulting other works on the throat, I find that the results of the observations of other well-known laryngoscopists do not differ materially from those of Morell Mackenzie. Males are more frequently affected with this form of laryngeal neoplasm than females, and young people more commonly than elderly persons, while the fibromata are almost exclusively met with in adults.

Tumors that develop late in life would suggest the probability of their being of a malignant nature, and we should take great care in our examination before giving a diagnosis. It must be remembered that an epithelioma in its early stages resembles a simple papilloma.

The favorite site is the upper surface or free margin of the vocal cords, but they may and occasionally do occur in other portions of the larynx; as for instance, in the anterior commissure or the under surface of the vocal cords. When located on the under surface of the cords, they may exist for some time without being observed, or producing any marked symptoms, and are sometimes discovered by accident. During expiration, the growth is sometimes forced between the cords, and the vocal bands grasping it, will cause a choking sensation, giving the patient the impression that a foreign body has lodged there. Then there follows

a slight hemorrhage, and the patient becoming alarmed consults a physician, who frequently, without making an examination, or a very imperfect one, attributes the hemorrhage to something else and not to the true cause. These growths are composed of connective tissue supporting blood vessels, and covered with epithelium; differing from the fibromata, which consists of firm, dense, fibrous tissue sparingly supplied with blood vessels. They vary in size from a millet seed to a mass which will almost completely occlude the larynx, and not only produce aphonia but interfere with respiration. They are both sessile and pedunculated, but usually they spring from a broad base. The papillomata, while not infrequently single, are generally multiple. Some authorities claim that they are more often single, but the results of my own observations have been as above stated. They are generally of a delicate pink color but sometimes are white and occasionally red. The surface of these growths are very uneven, resembling the surface of a cauliflower or raspberry, often having the appearance of a number of warts grouped together.

While the real cause of papillomata in the larynx is most indefinite, the contributing cause may often be traced to constant congestion, the result of cold or improper use of the voice. Therefore, we find papillomata more often in males and young people, because they are apt not only to use the voice imprudently, but in the open air. However, it is exceedingly difficult in every case to assign a definite active or predisposing cause for the development of these tumors in the larynx.

The symptom most commonly complained of is some alteration of the voice, though this is not invariably present, the alteration varying from a slight hoarseness to complete aphonia, the degree of aphonia not depending so much upon the size of the growth as upon its location. Thus a small sessile tumor, located upon the free margin of the vocal bands, will produce a greater degree of hoarseness than a large pedunculated growth which does not interfere

with the vibration of the cords, except when forced between them during the act of inspiration or expiration.

A growth upon the free margin of the cords will prevent the complete approximation of the vocal bands, and produce dysphonia: also a growth situated upon the under or upper surface, so large as to encroach upon the free margin of the cords, or the chink of the glottis, thereby interfering with the function of the vocal cords, will produce the same result.

Pedunculated growths cause aphonia and cough only when forced between the cords or when entangling a clump of mucus. Cough is not a frequent symptom, unless the tumor is located upon the free edge of the cord, or is of large size and movable, or vascular and liable to bleed.

Sometimes the voice is normal and nothing is complained of but a tickling and pricking sensation in the larynx, and occasionally this will be followed by a violent cough.

Dyspnœa occurs when multiple growths are of sufficient size to embarrass respiration.

In the last ten years I have treated a large number of laryngeal neoplasms, the greater portion being papillomata. From these I have selected three cases, the history of which will be of interest, possibly giving some clew to the ætiology.

Mr. H. age thirty-five years, applied for treatment in 1889, and gave the following history: He said for eight months he had been under a great mental strain, had been having some family troubles which worried him continually, was very nervous, and in fact seemed to be suffering from nervous prostration. It was while in this condition, about eight weeks previous to his first visit, he attended a meeting, did considerable shouting, imprudently using his voice. The next day he was very hoarse; this condition continued about three days, but gradually the voice returned to its normal condition. He was a tenor, but found no change in the voice after the hoarseness had disappeared; however, three weeks later he was taken with a choking sensation which was followed by a profuse hemorrhage. Thinking that something he had swallowed the night before might have lodged in the larynx,

he consulted a physician, who, on making an examination, attributed the trouble to a dilated vein, which had ruptured, which was the result of overwork and worry.

These choking sensations and hemorrhages occurring at intervals of four or five days, after three weeks had elapsed he again consulted the physician, advancing the opinion that there must be something growing in the larynx. The doctor made another examination, this time discovering on the under surface of the right cord a pedunculated papilloma, which at times during expiration was forced between the cords, and being grasped by the vocal bands accounted for the choking sensation and hemorrhage. There was also a small sessile growth on the upper surface of the right cord. These tumors were removed and then chromic acid was applied to the seat of the growths twice a week for three weeks; then once a week for three weeks; the patient was instructed to use the thujaole at home once a day. There has been no return of the growth, but the voice has not regained its normal strength.

CASE II. Mr. K., age twenty-eight years, applied for treatment in June, 1890, complaining of hoarseness and a pricking sensation in the larynx, had also a slight cough and informed me that he had lost about twenty pounds in weight during the last year. He had been out of work for some time, and seemed to be much worried and very nervous; said that he had had a growth removed from the larynx two years previously. This nervous condition was not due to the fear of an operation, as I found afterward that he was a good patient to operate upon, so it could only be attributed to the fact that his general condition was below par. I made an examination, and discovered a number of sessile papillomata situated upon the upper surface of the cords. They were very large, and so encroached upon the free edge of the vocal cords as to prevent their approximation. I had no difficulty in removing them, as the patient's throat was very tolerant, and the after-treatment was the same as before described. I can also report that there has been no return of the growth.

CASE III. Mrs. M., age thirty, came to my office for treatment April 13, 1895. Complained of hoarseness and difficulty in breathing, also of a cough, which was followed sometimes by a choking sensation. She had lost in weight since the trouble

commenced, which was six months previous to her first visit to my office. There was at this time complete aphonia and the respiration was impaired. From her history, I learned that the starting point of the trouble was a severe attack of laryngitis. She was an elocutionist, and also engaged in a business which required the use of the voice most of the time. It was while in this condition, and before the voice had attained its normal pitch, the vocal cords still being congested, that she returned to her vocation and commenced using the voice, without any regard to the strain upon the diseased and thickened cords. I believe had she abstained from using the voice while the cords were congested, and made herself understood by some other means, there would have been no need of an operation. She had been under the care of a physician for four months previous, without obtaining relief, but gradually becoming worse, so that when she applied to me for treatment, it required an effort even to whisper. On laryngoscopic examination I discovered what I would call a diffuse papilloma. The *rima glottidis* was completely packed with papillomatous masses, which were irregular, of various sizes, and pink in color. They were attached, as I afterward learned, to the upper and under surface and free edge of the vocal cords, the cords being so completely covered with the growth that no part of them was visible. I could not at this time make out the attachment of the growth. At the posterior commissure there was just a small space where air could pass through the larynx. I sprayed the parts with a twenty per cent. solution of cocaine, and made an attempt at removal with the forceps, which was unsuccessful; even when the fauces and larynx were thoroughly cocaineized, as the forceps were introduced and approached the larynx the throat muscles would go into spasms.

An application of the tincture of thuja was made to the parts, and the patient instructed to oil the index finger, pass it into the mouth, and raise the epiglottis, this to be done seven or eight times a day, also to use two or three times a day a spoon, with the handle slightly bent, in the same manner. It was some time before the throat became sufficiently tolerant to allow of removal by forceps. At one time the respiration became so impaired that I thought I should have to resort to thyrotomy and remove the growth in this way. It was at this visit, when I had

almost resolved to give up the idea of removal by the intralaryngeal method, I succeeded in removing with forceps a piece as large as a pea, crushing other parts of the growth, so that a portion nearly as large was coughed up the next day.

The throat gradually became accustomed to instrumentation, and I was able to remove all of this papillomatous mass by the forceps and chromic acid.

A singular thing was, that after the upper and under surface of the cords had been entirely freed from the neoplasm, there remained an unevenness of the edges of the vocal cords, presenting that nodular appearance that we get in chondritis tuberosa. I am of the opinion that after the laryngitis there developed a chondritis tuberosa, and this was followed by the papillomatous growth. This condition was very obstinate, and it was some months before she regained her voice. By judicious treatment I have been able to prevent a recurrence.

In regard to the treatment of papillomata of the larynx, some physicians, in order to avoid if possible the necessity for operative interference, have used thuja both locally and internally, and have given some flattering reports of cures made with this and other remedies. We must not place too much dependence upon the reports of cures by internal and local medication, because growths of this character, when small, have for some reason difficult to explain disappeared spontaneously without treatment. When the growths are small or single, not causing much inconvenience to the patient, we are justified in using some remedy such as thuja, which when used both locally and internally has been known to have a marked effect upon these growths, though slow in its action. If, however, the growth is large, or if we have a multiple growth to deal with, it should be removed at once. No experienced laryngologist would think of depending upon thuja or any other remedy in such cases.

Growths of moderate size, when not producing too much discomfort, may be removed by repeated application of either the chemical or potential cautery. For the destruction of the growth we may employ either the nitrate of

silver or chromic acid. I have found the nitrate of silver inefficient as a destructive agent, and therefore prefer chromic acid for this purpose. The result obtained from the use of this chemical will depend largely upon the exact amount of its employment.

Applications of chromic acid are best accomplished by means of a probe upon the point of which a tiny crystal of the acid has been fused. Its point, previously heated, is applied to the crystal, which fuses and adheres to the heated metal in the form of a small red bead. The probe should have a correct laryngeal curve and the applications made to the laryngeal growth, great care being taken not to touch any other portion of the larynx. As the chromic acid comes in contact with the papilloma, the crystal vanishes from the end of the probe, reappearing as a minute white speck upon the point of application. The eschar gradually exfoliates, and as the sphacelated fragments are expectorated, minute depressions appear upon the surface of the growth. The irregular projections resulting from this chiseling process are leveled by successive applications of the acid. In this way by degrees the papillomatous tissue may be completely removed. If the adjacent parts have not been touched, the patient will experience comparatively no discomfort from these applications. The galvano-cautery may also be employed for the destruction of these growths, using an electrode with a very small point or the galvano-caustic snare. It must be used with the greatest caution and skill, otherwise we shall have troublesome symptoms following.

Where the growths are large or multiple they should be removed by forceps or cold wire snare. I prefer the forceps, and I select one most suitable for the case to be operated upon, and one that will cause the least inconvenience to my patient; therefore I consider it necessary for those who attempt operations of this character to be provided with different designs of laryngeal forceps.

It must be borne in mind that in the removal of these growths there is a possibility of damaging the adjacent

soft parts ; therefore, the amount of success in their removal will depend on the practice and skill of the operator.

Such operations should be left in the hands of those who are in the constant habit of treating laryngeal cases, who, from constant practice, have acquired that nice manipulative skill which an endo-laryngeal operation demands.

It seems hardly necessary to remind operators, that before introducing the forceps into the larynx they should be warmed. I have, however, seen operators omit this, and I consider it important, from the fact that when warmed it diminishes the irritation caused by the use of instruments in the larynx.

Some authors advocate shaving off the growth by means of a small bistoury mounted upon a suitable handle. This is open to serious objections ; first, the danger of profuse hemorrhage and the dropping of the severed tumor into the trachea ; second, to the liability of injuring the vocal bands.

Lichtwitz of Bordeaux employs a novel method for removing papillomatous growths from the larynx by means of fenestrated tubes. As the tube enters the larynx, the growth protrudes through the opening and can then be removed.

All intra-laryngeal operations require that the larynx and fauces should be well cocainized. This is best accomplished by spraying the parts with a ten or twenty per cent. solution of cocaine.

After the removal of a papilloma we must do something to prevent its recurrence. For this purpose, I advise spraying the larynx with thujaole once a day for three or four weeks, or to apply to the seat of the growth with a pledget of cotton firmly fastened to a wire applicator the tincture of thuja. This application should be made twice a week by the physician and the thujaole should be used at home by the patient.

To prevent recurrence, some advise rubbing the base with a twenty or fifty per cent. solution of lactic acid. This certainly acts well in some cases. If I have any doubts as

to the character of the growth, if it presents any indications of malignancy, I use the lactic acid pure or eighty per cent. It has an advantage over other caustics, as it destroys the proliferating neoplasm, leaving unaffected any little islet of sound tissue that may be present.

I have also used a solution of zinc chloride, but found the thuja or lactic acid more efficient.

We must use great caution in expressing an opinion, both as to the recurrence of the growth and the restoration of the voice. Where we have a multiple or diffuse papilloma, we cannot confidently predict complete restoration of the voice; and if the after-treatment is not persistently followed, there is liable to be a return of the growth.

When the tumors are so large as to interfere with respiration, and when their removal cannot be accomplished through the natural passage by the endo-laryngeal methods, it becomes necessary to perform thyrotomy and remove them in this way.

It is claimed that a papilloma can be more completely removed by means of thyrotomy, and thereby the liability to recurrence is lessened. This is not so in the majority of cases, and even if it were, it must be remembered that this operation is not wholly devoid of danger. The voice is liable to be lost or permanently impaired. This is not always due to improper coaptation of the halves of the thyroid cartilages, but frequently the result of the loss of the normal tension of the crico-thyroid membrane, it failing to make satisfactory union.

DEAFNESS ; FROM ITS PATHOGENETIC SIDE.*

BY J. W. HAYWARD, M. D., BIRKENHEAD, ENGLAND.

IN view of Dr. Cooper presenting a paper on deafness from its clinical side, our indefatigable secretary, Dr. Hughes, has asked me to take up the same subject from its pathogenetic (repertorial) side.

That certain drugs have power to cause deafness all pharmacodynamists admit ; for instance, quinine sulphate, salicine, salicylic acid, and others.

Those which, up to the time of the issuing of the "Cyclopedia of Drug Pathogenesy," have been credited with this power are the following, viz. :

In the Cyclopedia : aconitinum—agar.—alcohol-sulphuris (carbon sulph.) — apocyn.—bell.—bry.—chin-sul. — chp.—cinnab.—coloc.—erythrox. (coca)—glon.—naj.—nat-salic.—plumb.—rhus-ven.—sabad. — salic-ac. — salicine—stram. — tabac.—teu.—tell.—ver-vir.

In the Materia Medica Pura : amb.—coccul.—ledum.—mangan.—merc.—spigel.—sul.—verat.—verbas.

In the Chronic Diseases : ant-crud.—borax—mag-mur.—nit-ac.—petr.—sep.—stan.—sul.—zin.

The following are credited with having caused "dullness of hearing," viz. :

In the Cyclopedia : aur.—bell.—cact.—coccus—chel.—croton—cupr.—mez.—mosc.—nat-salic.—opi.—pho.—phyt.—plumb.—sabad.—sang.—salic-ac. —sep.—sil.—tab.—thuj.—zin.

In the Materia Medica Pura : amb.—arn.—ars.—asar.—

* Read before the International Hom. Congress, London, August, 1896.

bry.—cham.—chin.—cicut.—coccul.—cycl.—dul. — ipec. — led.—mang.—merc.—pho-ac.—pul.—rheum—spig. — spon. — stan.

In the Chronic Diseases : amm-carb.—anac.—ars.—bar-c.—cal-c.—carb-a.—caust.—dul.—kali-c.—lycopod.—magn.—mag-mur.—mez.—mur-ac.—natr.—nat-mur. — nit-ac.—petr.—phos.—pho-ac.—sil.—sul-ac.

Dullness of hearing—viewed pathogenetically—may be really the beginning of deafness, and would become deafness were the drug influence pushed to any great extent ; it will therefore, perhaps, be best not to consider the medicines in relation to the two conditions separately, but to classify them all under the one term—Deafness.

The medicines will then be :

In the Cyclopedia : aconitinum — agar. — alcohol-sulph. (carb. sul.)—apocyn.—aur.—bell.—bry.—cact.—chel.—chin-sul.—chp.—cinnab.—coccus—coloc.—croton—cupr.—eryth. (coca)—glon.—mez.—mosc.—naj.—nat-salic. — opi. — phos. — phyt.—plumb.—pul.—rhus-ven.—sabad.—sang.—salic-ac.—sep.—sil.—salicine—stram.—tabac.—teu.—tell.—thuj.—ver-vir.—zin.

In the Materia Medica Pura : amb.—arn.—ars.—asar.—bry.—cham.—chin.—cicut.—coccul.—cycl.—dul. — ipec. — ledum—mang.—merc.—pho-ac. — pul' — rheum — spig. — spon.—stram.—sul.—verat.—verb.

In the Chronic Diseases : amm-c.—anac.—ant-crud.—bar-c.—borax—calc-c.—carb-a.—caust.—dul.—kali-c.—lycopod.—magn.—mag-m.—mez.—mur-ac.—natr.—nat-m.—nit-ac.—petr.—pho.—pho-ac.—sep. — sil. — stan. — sul. — sul-ac. — zin.

They amount together to 82 different medicines—a goodly number wherewith to treat one symptom. Others are given in some of our treatises as having caused deafness or dullness of hearing, but on examination it will be found that these are scarcely entitled to the distinction—that the record does not meet the requirements laid down in Instructions 6, 7, 8, 9, of the “Cyclopedia,” p. x ; and even with some of those in the lists the deafness may have arisen

from the presence of wax rather than from the action of the drug, for it does not appear that the speculum was frequently resorted to.

Numerous as the medicines are, the deafness of most of them has something about it peculiar to itself, and which distinguishes it from that of the rest.

For a complete enumeration of all the Conditions and Concomitants, see the "British Repertory," pp. 12, 13, 14, 2d ed.; and for the symptoms complete, at least the "Cyclopedia" ones, see "Supplement" to same, published in *Monthly Homeopathic Review* for January to June, 1895.

The deafness of *aconitinum*. In one instance came on during an acute attack of congestion of brain, and was accompanied by humming noise now in one ear, now in the other.

" *anac.* Was in one instance in turns with increased acuteness of hearing.

" *ant-crud.* In one instance was on the right ear, and could not be relieved by boring finger into ear. In another it occurred in the evening.

" *apoc.* In one instance occurred soon after singing, and lasted for an hour, and was accompanied by occasional sticking pain.

" *ars.* In one instance swallowing produced stopped-up feeling with deafness.

" *asar.* Occurred in three of Hahnemann's provers, and in each was as if from external obstruction, plugging, or covering. In one it was accompanied by tensive pressure in the meatus (right) and lasted seven days.

" *bel.* In one instance was accompanied by difficulty in speaking, and in another by stitches in inner ear.

" *bor.* In one instance was sudden, as if the ear were wrapped up; in another it was accompanied by roaring noise.

" *bry.* In one instance was in left ear, and was accompanied by tonsillitis, a rheumatic attack, and roaring noise.

The deafness of *cactus*. Lasted all night, was accompanied by noise like a rushing river, and by pulsation in the temples, with some feverishness.

“ *cal-c.* In one instance in occurred early in the morning of the second day of the proving, and was accompanied by humming noise ; in another it occurred on blowing the nose, and was relieved by swallowing.

“ *carb-a.* Was accompanied by hallucinations of hearing, as if the sounds came from another world.

“ *caust.* In one instance it was caused by the sounds re-echoing in the ear ; in another in was accompanied by noise as of water rushing over a dam.

“ *chel.* It lasted for some weeks, and was accompanied by tinnitus.

“ *chin-sul.* In one instance it was preceded by stunned feeling, vertigo, and horrible vomiting, followed by delirium, giddiness, and blindness ; in another it was accompanied by flatulent indigestion, roaring noise, and headache ; in another by roaring noise and intense heat of skin, followed by perspiration and tipsy feeling.

“ *cinnab.* Was accompanied by rushing noise in the ear.

“ *coccul.* In one instance occurred in both ears alternately, and was accompanied by stopped-up feeling ; in another with noise as of rushing water.

“ *coccus.* Was accompanied by stopped-up feeling, bitter taste, and cold feeling in occiput as if blown upon.

“ *coloc.* Was accompanied by roaring noise and hallucinations of hearing.

“ *dul.* Seemed to be caused by a drumming and dull roaring in ear, and was accompanied by tearing and stitching pains and with a snapping as if something were broken on opening the mouth.

The deafness of *eryth.* Was accompanied by noise, headache, illusions of sight, and dryness in the throat.

“ *glon.* Was accompanied by congestion of the brain, irregular action of the heart, and faintings.

“ *ipéc.* Was accompanied by aching pain in the ear.

“ *kali-c.* Had the character of slowly increasing and diminishing.

“ *ledum.* Was accompanied by hallucinations of hearing and stopped-up feeling.

“ *magnes.* Was accompanied by various noises, and the appearance of intoxication.

“ *mag-m.* Was almost complete in one instance in both ears, worse in left, frequently decreasing and increasing; in another, was accompanied by burning and humming in the head.

“ *mang.* In one instance occurred on stooping and was accompanied by roaring and stopped-up feeling.

“ *merc.* Though he could hardly hear anything yet everything resounded loudly in the ear.

“ *mez.* Was accompanied by tinnitus, confusion, and vertigo.

“ *mur-ac.* In one instance was accompanied by dryness of the wax and then a sudden noise; in another he heard the tick of a watch better than he understood the human voice.

“ *nat-salic.* In one instance it was total, occurred on awakening, and was accompanied by mydriasis and total blindness; in another there were constant noises, and he heard the tick of a watch only at two inches from the ear, and not at all when in firm contact with the zygoma or mastoid; in another it was accompanied by headache and contracted pupils.

“ *opi.* In one instance there was dullness of hearing in left ear for four minutes, also dimness of sight, as if looking through a veil; in another it was accompanied by buzzing noises as of a bee.

The deafness of *petr.* Once it occurred on eructating ; at another time it was caused by a whizzing noise before the ears ; at another, in the right ear, it was accompanied by a pain previously felt in left eye.

“ *phos.* Was accompanied by buzzing, humming, and ringing noises, burning in inner ear, swelling of concha and of the nasal and superior maxillary bones, with epistaxis.

“ *phos-ac.* Had the peculiarity that hearing was better for distant sounds than for near ones, also was accompanied by roaring noise.

“ *phytol.* Though there was feeling of obstruction of eustachian tube, with rushing noise and feeling of dullness of hearing, the dullness of hearing was only apparent, not real.

“ *plumb.* Occurred in several connections, with buzzing noise, or headache, or dimness of vision, or loss of power of smell.

“ *puls.* Occurred in several connections. In one instance it was accompanied by stopped-up feeling, trembling, and perspiration on back, and returned every other hour ; in another it was accompanied by whistling noise and sensation as if the membrana tympani were forced outward.

“ *rheum.* Was accompanied by roaring and sensation as if membrana tympani were relaxed.

“ *salic-ac.* Was frequently accompanied by buzzing noise and profuse sweat ; in some cases it was accompanied by buzzing and followed by dizziness, headache, and singing noise, with hallucinations of hearing.

“ *salicine.* Lasted for days and was accompanied by mental dullness.

“ *sang.* Was accompanied by roaring noise and sensation as if eustachian tube were stopped up, with rawness of tonsil and dysphagia.

The deafness of *sep.* In one instance was accompanied by stopped-up feeling and by thick yellow discharge from nose; in another it was preceded by roaring noise.

“ *sil.* In one instance it was for the human voice; in another it had the character of suddenly coming and going; in another it was apparently caused by a whizzing in the head; in another it was especially on rising in the morning for four days, and was accompanied by a dull grumbling and as if something were in the ear; in another it was accompanied by a hissing noise, and a discharge from the ear; in another it was in the right ear for two or three days and was accompanied by tinnitus, persistent coryza, and a great discharge of thick whitish mucus from the nose.

“ *spig.* In one instance it occurred on blowing the nose.

“ *stan.* Occurred in the morning on rising for four days, and was accompanied by stopped-up feeling; it was relieved by blowing the nose.

“ *stram.* Was accompanied by roaring noise and feeling as if the head would burst.

“ *sul.* In one instance was transient, in both ears; in another the left ear became closed in such a manner that he was indeed able to hear everything, but was not able to understand what he was told; in another the ear became closed on blowing the nose; in another it was accompanied by humming noise.

“ *thuj.* Occurred in the morning and at noon, lasted for several minutes each time, and was accompanied by stopped-up feeling.

“ *ver-v.* Occurred on movement and was accompanied by ringing noise.

It will be noticed that in this enumeration not all the medicines that cause deafness are mentioned, but only those with some special characteristic.

VARIETIES.

Transient : chin-sul.— coloc.— opi.— sep.— sul.— teu.— thuj.

Continued : alcoh-sul.— apoc.— calc-c.— chel.— mag.— nat-salic.— nit-ac.— salicine— sil.— stan.

“ Lasting about an hour: apoc.

“ “ for some time: alcoh-sul.

“ “ “ days, and only disappearing gradually: salicine.

“ “ two or three days: sil.

“ “ for four days: sil.— stan.

“ “ and gradually increasing for five days: amb.

“ “ for seven days: asar.

“ “ two weeks: chp.— nat-salic.

“ “ some weeks: chel.

“ “ a month: mag.

“ “ a long time: calc-c.

Occasional : bel.

Intermittent : mag-m.— sil.

Recurrent : alcoh-sul.— coccul.— pul.— stan.— thuj.

Sudden : bor— sil.

For near sounds— hears distant sounds better: pho-ac.

For human voice : chp.— mur-ac.— sil.— sul.

In turns with acuteness of hearing : anac.

Preceded by acuteness of hearing : opi.

Alternately in the two ears: coccul.

The deafness of *kali-c.* In one instance was in both ears and had the character of slowly increasing and diminishing (for a fortnight).

“ *mag-m.* Had the character of frequently decreasing and increasing, and was accompanied by burning and humming in head.

“ *mur-ac.* In one instance the tick of a watch was heard much better than he understood the human voice; in another it was accompanied by dryness of the wax and then sudden noise.

The deafness of *nat-salic*. The tick of a watch was heard only at two inches distant from the ear, but not at all when in firm contact with the zygoma or mastoid.

“ *phos-ac*. Had the peculiarity that the hearing was better for distant sounds than for near ones; or it was accompanied by hissing and roaring noises.

“ *phyt*. Was more apparent than real; and there was feeling of obstruction of the eustachian tube, with rushing noise.

“ *sil*. Had the character of being for the human voice; or of suddenly coming and going, and being accompanied by a discharge from the ear, or by tinnitus, persistent coryza, and copious discharge of thick whitish mucus from the nose.

“ *sul*. Was in left ear for human voice in one instance; in another it occurred on blowing nose.

All the varieties occurring in the provings are not here given; only the most distinct.

CONDITIONS OF OCCURRENCE.

At noon—pul.

Night (all)—cact.

Morning—cal-c.—salicine.

Morning and noon—thuj.

“ on rising—stan.—sil.—thuj.

Afternoon—mag.

Evening—ant-c.

“ in bed—cham.

Forenoon—mag.

Relieved by external pressure—phos.

“ boring finger in—mag-m.—spig.

Not relieved by boring finger in—ant-c.

On movement—ver-v.

On blowing nose—cal-c.—spig.—sul.

Relieved by blowing nose—stan.

- On swallowing—ars.
- Relieved by swallowing—cal-c.
- During dinner—alcoh-sul.
- After dinner—alcoh-sul.
- On eructating—petr.
- During menstruation—mag-m.
- After singing—apoc.
- On awaking—nat-salic.
- On stooping—mang.

Alcoh-sul. After dinner one day and during dinner the next day the left ear felt deaf as if obstructed by a thick substance.

Apoc. It occurred soon after singing, was in the left ear, lasted over an hour, and was accompanied by occasional sticking pain.

Ars. It occurred especially on swallowing, and was accompanied by stopped-up feeling.

Mang. It occurred on stooping, and was accompanied by roaring noise and stopped-up feeling.

Nat-salic. On awaking from sleep there was considerable mydriasis and total blindness and deafness.

Petr. In one instance occurred when eructating.

Spig. In one instance it occurred on blowing the nose, and was accompanied by stopped-up feeling.

Stan. In one instance it occurred in the morning on rising, and was relieved by blowing the nose.

Sul. In one instance it occurred on blowing nose.

Thuj. In one instance it occurred in the morning on rising, and was accompanied by stopped-up feeling.

Ver-v. It occurred on movement, and was accompanied by ringing noise.

CONCOMITANTS.

Mental—

- Cheerful humor—opi.
- Depression and languor—salic-ac.
- Mental dullness—chp.—salicine.
- Stupefaction—cham.
- Countenance heavy and dull—salicine.

Restlessness and tossing about—cham.

Stunned feeling, delirium, and vertigo—chin-sul.

Sensorial—

Vertigo—chp.—salic-ac—col.

“ and confusion—opi.—mez.

“ stunned feeling, and delirium—chin-sul.

“ and headache—salic-ac.

Feeling of intoxication—mag.

Faintings—glon.

Cerebral—

Roaring in head—sil.

Pulsation in temples—cact.

Congestion of brain—aconitinum—glon.

“ and headache—chin-sul.

Head full and bursting—stram.

Headache—chp.—eryth.—nat-salic.—plumb.

“ and vertigo—salic-ac.

Pulsation in temples—cact.

Cold feeling in occiput—coccus.

Ocular—

Pupils contracted—nat-salic.

“ dilated—salic-ac.

“ dilated and blindness—nat-salic.

Dimness of vision—opi.—plumb.

Indistinct vision and great sensitiveness to light—sul.—
tab.

Double vision—erythrox.

Almost blindness—tab.

Total blindness—chin-sul.

Blindness and mydriasis—nat-salic.

Auditory—

Of anac. The deafness was in turns with increased acuteness of hearing.

“ caust. In one instance was apparently caused by a re-echoing of the sounds in the ears; in another it was accompanied by a noise as of water rushing over a dam.

“ cham. Was accompanied by hallucinations of hearing, stupefaction of the head, nausea, restlessness and tossing about, and numbness of skin.

Of merc. Was about total, and yet everything resounded loudly in the ear.

“ opi. In one instance was preceded by increased acuteness of hearing and accompanied by stopped-up feeling.

“ salic-ac. In one instance was accompanied by buzzing noise and followed by dizziness, headache, singing noise, and hallucinations of hearing.

“ ver-v. Was accompanied by ringing noise.

“ **Hallucinations** of hearing accompanied the deafness of carb-a.—cham.—coloc.—ledum—salic-ac.

“ **Tinnitus.** Various kinds of noise were part of the same symptom in aconitum—bor.—bry.—cact.—calc-c.—caust.—chel.—chin-sul.—chp.—cinnab.—cocc.—coloc.—dul.—erythr.—magn.—mag-m.—mang.—mez.—mur-ac.—nat-salic.—opi.—petr.—phos.—phos-ac.—phyt.—plumb.—pul.—rheum—salic-ac.—sang.—sep.—sil.—stram.—teuc.—ver-v.

“ **Stopped-up** feeling was part of the same symptom in ars.—asar.—bor.—coccul.—coccus—led.—mang.—sang.—sep.—stan.—teuc.—thuj.

“ **Pain** within the ear was part of the same symptom in apo.—bell.—dulc.—ipéc.—pet.—phos.—tell.

The deafness of apoc. was accompanied by sticking pain.

“ bell. was accompanied by sticking pain in inner ear.

“ dul. was accompanied by sticking and tearing pain.

“ ipéc. was accompanied by aching pain.

“ pet. was accompanied by drawing pain proceeding from the eye.

“ phos. in one instance was preceded by roaring noise and shooting pain, and followed by yellow discharge.

“ tell. was an accompaniment of painful ulceration within the ear.

Nose and Throat—

Sensation of dryness in throat—erythr.

Tonsilitis—bry.—sang.

Loss of power of smell—plumb.

Obstruction of nostrils—sang.

Persistent coryza—sil.
 Whitish discharge from nose—sil.
 Yellow discharge from nose—sep.
 Epistaxis and swelling of nasal bones—phos.

Mouth and Stomach—

Bitter taste—coccus.
 Stomach-ache—coloc.
 Horrible vomiting—chin-sul.
 Difficult speech—bell.

Heart and Vascular—

Irregular action of heart—glon.
 Congestion of brain—aconitinum—chin-sul.—glon.
 Faintings—glon.

Fever—

Feverishness—cact.
 Rheumatic febrile attack—bry.

Generalities—

Faintings—glon.
 Profuse sweat—salic ac.
 Trembling, and perspiration on back—pul.
 Numbness of skin—cham.

PROBABLE PATHOLOGICAL RELATIONSHIPS.

The deafness of cham.—dul.—ipec.—kali-c.—pul. appears to be of a catarrhal nature, or to result from active congestion of the organs of hearing ; and perhaps that of bry.—mer.—sang. is of a similar nature.

“ cicut.—glon.—opi.—tabac. appears to be from passive congestion.

“ bell.—bry.—sang. appears to be connected with inflammatory conditions in the throat ; and perhaps that of phythol.—merc.—erythrox. may own much the same origin.

“ sep.—sil.—tell.—teuc. appears to be connected with ulceration within the ear itself ; and perhaps that of merc.—phos.—sul. may be so also. This is much the nature of their action within the nose.

The deafness of chin-sul.—salicine.—salic-ac.—nat-salic. appears to be of a cerebral or nervous character; and perhaps also that of plumb.—phos.—glon.—stram.—With plumb. there were symptoms of paralysis.

“ aconit.—dig.—glon.—stram. appears to be of vascular origin, or to be connected with cerebral congestion.

“ bry.—dul. may own a rheumatic nature.

“ pul.—chel.—chin-sul. may be in connection with a bilious condition.

The deafness of sul.—calc-c.—sil. may own a strumous dyscrasia as a favoring condition.

“ aur.—mer.—nit-ac. may own a syphilitic cause.

With the following the pathogenetic action seems to spread from the throat, either reflexly through the superior laryngeal nerve, or by extension along the mucous membrane; al-cep.—apis—bell.—bry.—phyt.—sang.—rhus-v.

With arum.—aur.—kali-bi.—phos.—teuc. it seems to spread from the nose.

With ars.—tell. it seems to be continuous with the action on the skin.

The peculiarities, and the conditions and concomitants enumerated above *were all elements of the same symptom* with the deafness, as given in the pathogenesis; that is, they were all connected with the deafness. Other disturbances of hearing besides deafness were produced by the same medicines; such as increased acuteness of hearing, illusions and hallucinations, and nearly all kinds of noise; also other symptoms connected with the inner and middle ears, and with the meatus, such as sensitiveness to music, to noise and to cold air; stopped-up feeling; feeling of fullness; feeling of foreign body; hemorrhage, pulsation, congestion, inflammation, ulceration, discharge; creeping, crawling, irritation, itching, swelling; and nearly all kinds of pain; also vertigo.

These other symptoms, if taken in addition to the conditions and concomitants, will greatly assist in determining

the homeopathicity of any particular medicine in any given case of deafness.

In poisonings and experiments the drug influence is seldom sufficiently prolonged to bring about deafness dependent upon structural changes; and in provings it is seldom carried so far as to produce deafness, even of a functional character. If, however, the precursory symptoms, such as increased acuteness of hearing, sensitiveness to noise, dullness of hearing, illusions of hearing, subjective noises, stopped-up feeling, feeling of fullness, throbbing, irritation, pain, etc., be produced, the medicine may be truly homeopathic to deafness itself; that is to say, it will be homeopathic to the deafness if it is homeopathic to the symptoms by which the deafness was ushered in.

It will, perhaps, be well to go somewhat into detail as to the related symptoms—stopped-up feeling, increased acuteness of hearing, tinnitus, vertigo:

STOPPED-UP FEELING: This is itself more or less a deafness, and there are sixty-one medicines credited with having produced it.

In forty-four of these it occurred in the same symptoms with the deafness, viz. in aconitinum—agar.—alcoh-sul.—amm-c.—anac.—antim.—ars.—asar.—aur.—bor.—bry.—caust.—coccus—cham.—chel.—chin-sul.—coccul.—cycl.—kali-c.—led.—lycopod.—mang.—mag-mur.—merc.—mez.—natr.—nit-ac.—opi.—petrol.—phos.—phyt.—pul.—sabad.—sang.—sep.—sil.—spig.—stan.—sul.—salic-ac.—tabac.—thuj.—verat.—verb.

In seventeen it occurred in a different symptom, viz., in alum.—argent.—carb-v.—colch.—con.—crotal.—dig.—dubois.—graph.—kali-bi.—milif.—plat.—rumex.—seneg.—tanacet.—tellur.—teuc.

One of these, therefore, may be homeopathic to deafness, even though true deafness has not been recorded in its pathogenesis.

INCREASED ACUTENESS OF HEARING and sensitiveness to noise and music—being indicative of an excitement of, or of the early stage of congestion of the auditory nerve—

may be precursors of deafness. Several drugs are credited with producing these ; they may, therefore, be occasionally indicated in the early stages of deafness, even though "deafness" is not to be found in their pathogenesis. They are :

In the Cyclopædia : acon.—can-ind.—chp.—coff.—colch.—crotal.—lach.—lycopod.—nux-v.—opi.—sang.—seneg. (music)—strych.—sul.—tabac.—tanac.—viol-od. (music).

In the Materia Medica : carb-v.—merc.—phos-ac. (music)—spig.

In the Chronic Diseases : ars.—carb-v.—con.—iod.—magn.—mur-ac.—nit-ac.—phos-ac. (music)—sep.—sil.—sul.—(also music).

The following are credited with having produced *both deafness and acuteness* of hearing, viz., ars.—lycopod.—magn.—merc.—mur-ac.—opi.—phos-ac.—sang.—sep.—sil.—spig.—sul.—tabac.

TINNITUS.—Noises are frequently precursors of deafness ; they may result from anæmia or hyperæmia of the auditory apparatus, or from effusion within the tympanum, especially the pulsating noises. Many drugs are credited with having produced this symptom.

In the Cyclopædia : aconitin—acon.—al-cep.—agar.—alo.—alumin.—alcoh-sul.—am-b.—amyl—apoc.—apis—arn.—ars.—ars-i.—asaf.—aur.—bar-m.—bell.—brom.—bry.—calc-c.—cann.—cann-in.—canth.—carb-ac.—carb-a.—carb-v.—colch.—coccus—chel.—chin.—chin-ars.—chin-m.—chin-sul.—clem.—cinnab.—coff.—cob.—cro.—cycl.—digit.—dubois.—erythrox.—eupion—gam.—glon.—hydras.—hel.—kali-bi.—lach.—lac-vir.—lycopod.—men.—merc.—mer-cy.—mez.—mor-a—mosch.—myric.—naj.—nat-m.—nat-salic.—nit.—nux-mos.—nux-v.—opi.—osm.—pæo.—phel.—phos.—physos.—pod.—plumb.—pul.—rhod.—rhs-v.—rum.—sang.—salic-ac.—sabad.—sep.—sil.—salicin.—seneg.—stram.—strych.—sul.—sul-i.—tab.—teuc.—thuj.—ver-v.—viol-od.—woo.—xanth.—zin.

In the Materia Medica : acon.—amb.—ang.—arn.—ars.—asar.—aur.—bell.—bry.—cam.—cann.—canth.—carb-a—

carb-v.—cham.—chel.—chin.—cicut.—coccul.—col.—con.—dig.—dul.—fer.—hep.—ign.—led.—mang.—men.—merc.—mer-cor.—mez.—mosc.—nux-v.—opi.—phos-ac.—plumb.—pul.—rheum.—rhod.—rhus—sar.—spig.—spong.—stan.—staph.—sul.—thuj.—tarax.—verb.

In the Chronic Diseases : alum.—amm-c.—anac.—ant.—ars.—aur.—bar-c.—bor.—calc-c.—caust.—carb-a.—carb-v.—clem.—con.—cup.—dig.—dul.—euphor.—graph.—hep.—iod.—kali-c.—lycopod.—magn.—mag-m.—mang.—mez.—mur-ac.—nat.—nat-m.—nitr.—nit-ac.—pet.—phos.—pho-ac.—plat.—sar.—sep.—sil.—stan.—sul.—sul-ac.—zin.

VERTIGO.—This is also a very suggestive symptom, as being so frequently a result of labyrinthine hyperæmia, tension, or pressure; and therefore often a precursor of deafness. Of the principal medicines given in the Repertory as having caused vertigo, twenty-one also cause deafness: and chin-sul.—col.—mez.—opi.—salic-ac. produce deafness in the same symptom with the vertigo.

The following drugs have a well-pronounced pathogenetic influence on the auditory apparatus, viz.: acon.—agar.—alcoh-sul.—aur.—bell.—bry.—chel.—chin-sul.—chp.—coccus.—colch.—crotal.—dig.—kali-bi.—lycopod.—mang.—merc.—mez.—nat-m.—nat-salic.—nux-v.—opi.—phos.—phos-ac.—pul.—rhs-v.—salic-ac.—sang.—sil.—spig.—stryc.—sul.—tabac.—tell.—thuj.

As is the case with many other organs, most ear symptoms, both in disease and pathogenesis, are subjective merely, or at any rate are invisible and their pathology undiscoverable; in this symptoms in the ear differ from those in the throat and eye, where many of the morbid changes can be seen and their course watched by the observer. This subjective nature of ear diseases renders them very ill-adapted to old school management, where pathological notions dictate the treatment, but it makes them peculiarly suited for homeopathic management, where it is the symptoms that guide the treatment.

This phase of the matter belongs, however, rather to the clinical side, and to pursue it would be beyond the scope of this paper.

A CASE OF SYPHILITIC IRITIS.

BY GEO. H. RICHARDSON, M. D., LOS ANGELES, CAL.

COLLINS McG., aged three years. Present history: conjunctivitis, ocular and palpebral; irides swollen and of a greenish cast; ciliary neuralgia; pupils contracted; cornea and aqueous humors clouded; photophobia; no iritic gummata or involvement of the vitreous bodies.

Previous history: parents married twelve years; only one child, Collins; no miscarriages; father had chancre in 1877, was cured (?) in nine months; had an eruption one year before birth of the child; mother had shown no specific manifestations up to the date of confinement. At birth he was apparently healthy, with the exception of being born "circumcised," and with a very irritable and inflamed glans penis, which irritation resisted all efforts of the attending physician to cure, was finally healed by the persistent application of carbolized vaseline; the inflammation persisted for over three months, during which time the little fellow made no progress either in weight or growth, but in other respects was healthy, eating and sleeping well, having no intestinal or other complaints. With the cessation of the penile irritation Collins began to grow and pick up in weight, and a very obstinate papular eruption appeared, almost completely covering the back and abdomen. After nearly a year's treatment (allopathic) the eruption disappeared and in February, 1895, diphtheria of a malignant type set in, which was treated with the usual empirical measures and, in addition, injections of anti-toxin. This treatment so undermined his constitution as to leave him with a shattered nervous system and a very sickly disposition. Three months after the diphtheria whooping-cough set in complicated with adenitis, the left cervical lymphatics only being involved and enormously swollen. The pertussis lasted

about six months and was succeeded almost immediately by croup. The croupous attack was soon cured, and the little sufferer had a short respite and a few weeks of pleasurable existence until, in February of the present year, pneumonia made its pernicious presence known; this, in turn, was followed by an abscess of the antrum of Highmore, and that, in turn, by scarlet fever in July; later spasms further depleted the little fellow's energies, and in the latter part of August, after a mild attack of acute hypertrophic rhinitis, a papular syphiloderm erupted and was at the same time accompanied by the iritis for which I treated him.

Treatment; Merc. corr. 3x (trituration tablets and dilution) three times a day during the whole course of the six weeks' treatment; with occasional doses of acon. 3x and cham. 3x to control the intercurrent symptoms as they appeared. Locally a four-grain solution of atropia kept the pupils dilated; and a collyrium as follows:

R Hydrastine mur.	}	aa	.....	grs. iv
Morphia sulph.				
Glycerine				3 iv
Aqua dest., q. s.				3 vi
M. Sig. One drop in each eye four times a day.				

This effectually dissipated the conjunctivitis, being used in this instance in a quarter-strength solution, as the full strength caused too much pain. In addition he was kept in darkened rooms, and his diet (bovine being the principal article) and digestion carefully watched and regulated. His case was very stubborn, but the treatment was persistently carried out and with the most gratifying results.

This case is interesting and peculiar in that the diagnosis of its specific quality had to be based entirely on the history, as there was an entire absence of physical manifestations, with the possible exception of the eruption early in infancy; the eruption, however, not being diagnostic. The teeth do not show any traces of "Hutchinson's notch," but this crescent will without doubt be present in the permanent set.

"Is this a case of acquired or congenital taint?" is a question the answer to which depends on the establishment

of the solution of "At what date or period of time may syphilized parents consider themselves exempt from any risk to their future offspring?" and "At what period of inter-uterine life is the fetus free from dangers of syphilitic infection?"

From my knowledge of the history, I am of the opinion that it is congenital, and this conclusion is substantiated by the various chapters pertaining to "Infantile Syphilis," in the works of such pedologists as Tooker, J. Lewis Smith, Meigs and Peppers and others, which have been freely consulted with special reference to this case.

As to the use of antitoxin in this case I am firmly convinced that the post-diphtheritic diseases were implanted in a patient only too well prepared and rendered more susceptible to their subsequent inception by the action of the serum. That the recurring and obstinate adenitis is directly traceable to the injections is obvious to all. This remedy, if remedy it can be called, is more dangerous in its actions than beneficial in results; and its use is to be strongly condemned, and it cannot be too quickly relegated to the oblivion of "innocuous desuetude" where it and many other of the old-school *ignes fatui* properly belong.

REMOVAL OF A MYXO-FIBROMA FROM THE NASO-PHARYNX.

BY HERMAN E. STREET, M. D., BROOKLYN, N. Y.

INASMUCH as this form of neoplasm is not frequently seen, as compared with its half-brother, the mucous polyp, an account of one of these growths and its removal may not be uninteresting to the readers of the JOURNAL.

In July, 1896, a patient, George E. A., aged thirty-four, presented himself to me with the following symptoms : Nasal stenosis of the left side on expiration, with considerable hypersecretion ; the voice was affected to a certain extent, being in part deprived of its normal resonance, and the articulation slightly defective ; the patient had little difficulty in nasal inspiration, but expiration was partially obstructed ; he complained of having a feeling as of a foreign body hanging loose in the vault of the pharynx, more marked when inclining the head backward, and of a wheezing respiration. The patient was intensely uneasy and anxious about his condition, his mental distress being quite out of proportion to the gravity of the condition. An examination made anteriorly with a Miles' speculum revealed a pale pink ovoid growth far back in the left nasal fossa, apparently suspended from the upper portion of the oval opening of the posterior naris ; that the neoplasm was well supplied with blood was evident from its color and from the blood vessels upon its surface, thus excluding the diagnosis of a mucous polyp. After applying a four per cent. solution of cocaine an attempt was made to engage the growth within the loop of a cold wire snare, but on bringing the laryngeal mirror into use, the loop being introduced into the upper part of the pharynx through the nasal passage, the tumor was seized by the loop and removed in the same manner as one would remove a mucous polyp ; the bleeding was slight.

The object removed was kidney-shaped, two centimeters long, with a circumference one-third of its length, having a short, slender pedicle springing from what would be the hilum of the kidney, by which it was suspended from its position; a microscopic section showed that it was composed of white fibrous tissue branching and interlacing with a considerable quantity of myxomatous tissue between the fibers; the blood supply seemed liberal; the covering was of a very thin mucous membrane.

The ætiology of these tumors seems to be obscure, though it is held by Bosworth and other eminent writers that the fact of their springing from a point at the junction of the nasal cavity of the naso-pharynx will account for the combination of myxomatus and fibrous formation found in them; the one region being the favorite seat of myxomata and the other of fibromata.

The relief experienced by the patient on removal of the growth was very marked, the wheezing respiration ceased within three days after the operation and his mental condition became quiet and calm; as he expressed it, he "would not have that back in its place again for a thousand dollars."

There has so far been no recurrence of the trouble.

THE MIDDLE TURBINATED BODY.*

BY FRED. D. LEWIS, M. D., BUFFALO, N. Y.

THE nerve supply of that portion of the respiratory tract occupied by the middle turbinated body, and the septum opposite it, is perhaps the richest of any portion of the body, the nasal branch of the ophthalmic branches from Meckel's ganglion and the olfactory nerve being distributed almost entirely in this region. The space here is very narrow, so that an enlargement of this body sufficient to cause pressure, either through disease or simple blood stasis, frequently results in the development of reflex symptoms, the cause of which is not always easy to determine. These reflex symptoms may be located in organs far distant, so that their connection with the nasal cavities would not be suspected did they not often disappear after the pressure between the middle turbinated and the septum had been relieved. Bearing these facts in mind it has become a custom with me to examine carefully in every case for possible pressure in this region, and when found advise operation for its relief, whether the patient complains of any trouble that might be attributed to this cause or not, and the results have many times been quite a surprise both to myself and patient. The following cases are a few I would like to present for consideration :

CASE I. Mrs. F. (January, 1894), aged thirty-two years, has complained of asthma ever since she could remember ; always worse in damp weather and when lying down. Examination revealed contact of both middle turbinateds, which were removed.

* Read before Hom. Med. Soc. State N. Y., September, 1896.

The asthma had disappeared and has not returned up to a few months ago when I last saw her.

CASE II. Mrs. R. (November, 1894), came to me complaining of spasmodic cough of three years' standing. Had been treated for months with sprays, gargles, etc., with no result. Cough seemed to be caused by irritation in throat which was not relieved by coughing. No secretion was raised. Had lost appetite and weight rapidly within last few months, and thought she was in consumption. Examination of throat with laryngeal mirror showed only a general congestion. Could locate no cause for trouble there. However, in the left nostril was found an enlarged middle turbinated, pressing firmly against the septum. Removal of the hypertrophy relieved all the throat symptoms, and she was sent home cured in eight days. This case was reported before, but within the last few months I have heard, through a patient from the same city, that she has grown strong and has had no return of the trouble.

CASE III. Sister E., nurse (January, 1896), afflicted with chronic nasal catarrh, with complete loss of smell in right side. Examination showed middle turbinated on that side enlarged to such an extent as to cut off all communication with olfactory nerves. Removal resulted in partial return of smell.

CASE IV. Mrs. R. (April, 1896) complained of a feeling as if something lodged in throat or there was a swelling there. She had been a good singer in her youth and as she grew older, being now over fifty years old, she took much pleasure in her voice. She had found that within the last few years she could not sing with any satisfaction, and had developed a nervous, irritable temperament very unpleasant to her family. I found no cause for the trouble in the throat, but found the right middle turbinated in contact with the septum. The excess of turbinated was removed. Some months later I met her daughter's husband and inquired how Mrs. R. was; he replied with a cheerful smile that his mother-in-law had regained all her former cheerfulness, could sing as well as she ever did, and was quite a different woman in every way.

CASE V. Miss B. (April, 1896) complained of a constant desire to sneeze. This was at times so annoying that she was unable to attend social meetings or to see her friends. She said that she could not go for a drive in the wind or dust without suffering for

two or three days thereafter. Both middle turbinateds were covered with masses of polypoid tissue. The right side being in the worst condition, I operated that one first ; curretting to the bone. I was about leaving the city for several weeks, so advised her to return and have the other side treated in about a month and a half. Three months later the mother wrote stating that her daughter had been ill and unable to keep her appointment, but said further, "The operation performed when we were there before has been very satisfactory, and my daughter is quite impatient about being prevented from having the other nostril placed in the same healthy condition." In August the left middle turbinated was curetted in like manner, and not having heard further I conclude the cure to have been complete.

These cases are but a few selected to show varied reflex troubles arising from middle turbinated pressure. They do not teach any new truths to the specialist, but it is hoped that they will have a tendency to direct interest to a defect that deserves more attention, in my judgment, than any of the works in my possession give it. The examination of this region is not difficult. Any practitioner with a head mirror, speculum, and the aid of a cocaine solution can see if contact exists or not, and when found, the relief afforded by an operation will reward the effort.

ABSTRACTS FROM CURRENT LITERATURE.

Vollert, Richard.—On the Status of Eucaine in Ophthalmology.*—Report from the Laboratory of the Heidelberg University Clinic for Eye Diseases, under the charge of Professor Dr. Theo. Leber.

Eucaine is the name of a new anæsthetic, introduced by the Chemische Fabrik auf Actien, said to be cheaper than cocaine, less toxic, and free from various other untoward properties of the latter. The name Eucaine was selected for the long and complicated chemical formula.† The base, like cocaine, slowly soluble in water, forms with HCl a readily soluble salt, showing the same effect as the base. Hydrochlorate eucaine crystallizes from water in glistening scales, unaffected by air, and from methyl-alcohol in glistening prisms.

The manufacturers furnished this clinic with a quantity of eucaine hydrochlorate, and the trials made with same resulted in the following observations :

Eucaine hydrochlorate is soluble in water, and retains its anæsthetic power even after boiling ; at ordinary temperature it dissolves only partly in a $\frac{1}{2}$ p. m. sublimate solution, the residue dissolving completely on boiling, but again precipitating when cold. We would therefore have to sterilize the solutions at boiling point, while cocaine solutions can be sterilized with sublimate—cocaine precipitating in such solutions only at a very low degree of cold.

As we use five per cent. cocaine solutions exclusively in our operations at this clinic, we employed eucaine in same proportion. It is well known that the instillation of a five per cent. cocaine

* Original translation from the Munich *Medizinische Wochenschrift*, June 2, 1896.

† Eucaine, like cocaine, is the methyl-ester of a benzoyl- γ -oxypiperidin carbonic acid. Its formula is $C_{19}H_{27}NO_4 \cdot HCl$.

solution occasionally causes a burning sensation of about one-half minute duration ; in most cases this is inconsiderable or not at all noticeable ; only rarely does a patient complain of this sensation. Eucaine, from my observations, causes this side-effect to a much higher degree, and of longer duration, extending over one to two minutes. The pain is similar to that caused by the intrusion of a foreign body into the cornea or conjunctival vessel, and shows the same accompanying disturbances : lachrymation, blepharo-spasm, increased filling of the conjunctival and ciliary vessels. In some cases we also noticed a change in the color of the new iris, such as we are accustomed to meet when the same is irritated.

We might overlook these displeasing manifestations in view of the cocaine-equaling anæsthesia, if they were compensated for by other advantages, and if every repeated instillation did not cause renewed irritation and pain—so that in operations necessitating the opening of the bulb, the pressing and squeezing on the part of the patient endanger the result in various ways, and if the other eye did not, in most surprising degree, share in the irritation, although in diminished intensity. Even from one per cent. solutions the pain is unvarying and equally intense ; the pain is so severe that several good-natured trial-subjects could not be induced to permit a repeated instillation.

Eucaine anæsthesia ensues within two or three minutes most promptly on the cornea and conjunctiva, so that operation is possible without causing pain. Hypotony of the eye, tested by pressing the bulbous end of a sound on the cornea and noting the depression, is the same as under cocaine. If anæsthesia is not prolonged by repeated applications, it subsides after eight to twelve minutes, and disappears entirely within fifteen minutes.

The firm's circular and a report by Vinci* assert that neither a dilatation of the pupil nor a spasm of the ciliary muscle are due to eucaine. In our experiments these claims were not verified. If, in fact, after a single application, mydriasis may not be observed even by a close observer, because too limited, it will not escape notice on instillation of the amount necessary, for instance, in an operation of iridectomy or of discission of cataract. In such cases the pupil is decidedly dilated, and in fact we measured

* Hufeland Society of Berlin, April 16, 1896, in *Deutscher Medizinanzeiger* 1896, No. 36.

a difference of 2 to 3 mm., with the pupillometer, plainly discernible after twenty to thirty minutes and still noticeable after seven hours. The reaction of the pupil was not diminished.

Testing the accommodation also demonstrated, from a single application, a limited extension of the near-point. Snellen 0.3 was repeatedly still discernible at the near-point distance, but not as distinctly as before. In a personal test (B. E. S. $\frac{6}{8}$ N. P. 12 cm.) a + 4.0 D. was required to read as distinctly as before at the near-point. This effect on the accommodation was coincident with the most pronounced mydriatic effect obtainable with eucaïne, and proved very unpleasant despite the return to a normal condition within 1½ hour. Positive results of other trials confirm our experience. The change in the accommodation ensued within 15 minutes after a single instillation of 4-6 drops eucaïne solution; a repeated dose of 4-6 drops induced within the same period a spasm of the ciliary muscle to +1.25 D., receding within an hour to +0.25 D., and leaving a long-lingering noticeable disturbance. Here, too, corresponding to the accommodation paralysis, the iris dilated (the pupillometer showed a variation of 2 mm.). The phenomena did not end until after 4 or 5 hours' duration.

Manometric measurements proved the similar effect of eucaïne.* It reduces the intra-ocular pressure 3 to 5 mm., preceded by a dilatation of 1 to 1½ mm.

We have long been warned that cocaine, through weakening the mobility of the eyelids, produced desiccation of the corneal epithelium. Eucaïne also robs the cornea, and particularly the conjunctiva, of its protecting cover, so that, after long continued experiments on animals, the epithelium could be almost entirely raised. We considered it extremely important to investigate this feature, as the power of epithelial change seems inherent in eucaïne to an excessive degree. Animals whose eyelids were sewed up after an instillation of eucaïne, to prevent desiccation of the epithelial covering, showed the dreaded complication in the same manner as those in whom the cornea was left without this protective effort. The macerated epithelium, removable in large shreds from the surface of the bulbus, on microscopical examination distinctly showed that its components were dilating and dis-

* Dr. F. Stocker: "On the Influence of Mydriatics and Myotics under Physiological Conditions."—v. Graefe's *Archiv.* XXX., III., A, p. 131.

sembling. This destructive process was completed within thirty to forty minutes. It is true that the corneæ were actually bathed with eucaine for a short time. In order to prove positively that this maceration was due exclusively to eucaine, the experiments were repeated a number of times with distilled water, and sublimate solution 1-5000, but the cornea remained intact after each trial. Under identical treatment with cocaine the corneal change was noticeable in only a very slight degree.

After what has been set forth here, we can hardly assume that this new product will find any indication for use in ophthalmology.

The advantages of slight dilatation of the pupils and weakening of accommodation might commend its use, applied pure, as an anæsthetic in certain cases where the eye would be exposed only briefly under one application; but the pain which it causes, compared to the agreeable ischæmia of the eyeball covering, following cocaine; the unpleasant and excessive erythema; and the danger of destructive influence on the epithelium of cornea and conjunctiva, so enormous compared to the effect of cocaine, will prevent the usurpation of the place occupied by cocaine as a tried and cherished friend of the ophthalmologist.

DEADY.

Sattler, Robert.—Excessive Hemorrhage after Enucleation of Eyeball.—*Jour. Am. Med. Assn.*, vol. xxvii. No. 21.

The author reports two cases of the above, the first occurring in a young man of sixteen years, whose eye was removed for a traumatic iridocyclitis which had produced symptoms of sympathetic irritation in the sound eye.

The operation was performed at the hospital and three hours after the patient was removed to his home in a carriage. On being summoned to the bedside the evening of the same day he found that profuse hemorrhage had taken place, the bandage and bedding in the immediate vicinity being saturated in spite of the pressure that had been maintained since its onset. The dressings were removed, the clots turned out and firm pressure kept up for ten or fifteen minutes, after which the dressings were re-applied, and digital pressure continued for two hours. In spite of this the hemorrhage still continued, and a hypodermic of morphia was given, which was followed by two hours of rest and sleep. At the end of this time he was again summoned and on

arrival found the dressing saturated, the patient prostrated, with feeble and rapid pulse. The dressings being removed an effort was made to introduce a tampon, which was unsuccessful owing to the firm infiltration of the tissues. Some pledgets of gauze were introduced and a firm compress applied. Digital compression of the common carotid was resorted to, the patient placed in a sitting posture, and another hypodermic administered. The patient became delirious during the night, with excessive prostration, so that recourse was had to hypodermics of strychnia and whisky, and hot applications made to the extremities. On removing the dressing the next morning there was complete extrusion of the contents of the orbit, the lids being covered by the extruded tissue, which had the appearance of an eroded sarcomatous mass. The hemorrhage was still unchecked. A small tampon saturated with the persulphate of iron was introduced, while pressure was made against the mass by means of a compress dipped in a styptic solution. Pressure on the common carotid had to be abandoned on account of the pain it produced. Salines and ergot were administered with negative results. The delirium was succeeded by a condition of stupor and listlessness. He complained of photophobia in the sound eye, pain in the occiput, and nausea. This condition lasted without much variation up to the end of the second day, the hemorrhage still continuing. Chills, followed by fever and the symptoms of commencing cellulitis, set in. During the third and fourth days the temperature ranged from 100° to 103° . Continuous pressure was maintained. The history from the fifth to the eighth day showed an increase of the cellulitis, with several defined points of fluctuation, but the aspirating needle failed to reveal the presence of pus. On the ninth day the patient commenced to improve and the hemorrhage ceased. Between the tenth and fifteenth days the central portion of the mass sloughed away and by the twenty-eighth day he succeeded in replacing the conjunctiva; two-thirds of the border of the lower lid, and one-third of the upper having been lost through necrosis. Several other members of the family were "bleeders."

The second case occurred in a man of fifty years. The eye removed was glaucomatous and was suspected to contain a malignant growth. Two hours after the operation there was a slight oozing, and an additional compress was applied. Three

hours later the hemorrhage had become so profuse as to completely saturate the dressings and pillow. The dressings were removed, the clots turned out and the finger introduced into the cavity and pressure made directly against the bleeding vessels ; this was followed by iced compresses. The patient became very weak and the pulse feeble. Active stimulation was resorted to and heat applied to the extremities. The oozing continued in spite of compress bandage and digital pressure maintained in addition, and the following morning, in removing the dressing, there was partial extrusion of the contents of the orbit while the lids were swollen and œdematous. An unsuccessful attempt to seize the bleeding vessel with the artery forceps was made, and the cavity of the orbit was packed with styptic gauze, and a compress bandage applied, supplemented with pressure by the hand. Attempted pressure over the common carotid gave rise to vertigo and a tendency to syncope, and therefore had to be abandoned. On the evening of the second day the tampon was forced out and recourse was made to compresses of styptic gauze applied directly to the swelling, as in the former case. Digital pressure was also maintained by relays of nurses. The morning of the third day the hemorrhage was less profuse, but the patient had become so exhausted that the most energetic stimulation was necessary, it being administered hypodermically and per rectum. The fourth day the dressing was not removed, as the oozing was but slight. From this time on recovery was uneventful.

RITCHIE.

Sheffield, Herman B.—A Case of Chorea Minor, Involving also the Ciliary Muscle.—*Am. Medico-Surg. Bulletin*, November 14, 1896.

A young girl of ten years was suddenly seized with general choreic movements, with impairment of the mental faculties. Accompanying these was a pupillary disturbance, consisting of alternate dilatation and contraction of the pupils, which took place a number of times within the minute, the size of the pupils changing from extreme mydriasis to that of extreme myosis. The extrinsic eye muscles were not implicated. Ophthalmoscopic examination revealed nothing but a slight degree of hyperopia.

The attack passed off in about two months, the treatment employed being large doses of Fowler's solution. RITCHIE.

Ulrich (Strasbourg).—Movements of Liquids Within the Eye.—*Société Ophtal. de Heidelberg.*—*Rev. Gén. d'Ophtal.*, No. 10, 1896.

Numerous experiments made with fluorescin upon the eyes of oxen have proved to the author that the iris allows the transudation of liquids from the posterior to the anterior chamber. These results are completely contradictory to those found by Koster in the laboratory at Heidelberg. In man this transudation is probably influenced by accommodation and the clinging of the eyelids, which produces a sort of aspiration. The posterior surface of the cornea also permits the filtration of a little of the aqueous humor through the endothelium. This occurs in the normal condition and not, as Leber believed, only when there is cadaveric degeneration.

DEADY.

Fuchs (Vienna).—Mycotic Colonies upon the Conjunctiva.—*Société Ophtal. de Heidelberg.*—*Rev. Gén. d'Ophtal.*, No. 10, 1896.

In the four cases seen by the writer there were found upon the conjunctiva small points resembling the infarctions of Weiborn, but they were found to be mycotic colonies resembling actinomycosis. There also appeared little yellowish grains, collected in little balls, sometimes covered with conjunctival epithelium. The symptoms were those of a very mild conjunctivitis. Simple curetting was sufficient to remove the colonies. Ignorance of the ætiological conditions and the difficulty of obtaining cultures hindered the recognition of the true nature of these parasites.

DEADY.

Furet.—Tonsillar Cough.—*Archiv. Internat. de Laryngol.*, ix., 1896.

Cough is generally a reflex action, and the point of irritation may be either within the larynx or at some distance from it. The complex distribution of the nerves of the larynx gives a wide range to the location of the initial lesion. Tonsillar cough may be provoked by acute or chronic inflammations or irritation of the gland caused by mycosis, calculi, foreign bodies, contact of a probe, etc. Adhesions of the faucial pillars are also sometimes responsible for reflex cough. Various other reflexes may accompany it, and there is no expectoration. The cough is spasmodic,

irregular, and violent. The diagnosis may be aided by the application of cocaine to the tonsil, which will usually relieve the cough temporarily. The treatment must necessarily be directed toward improving the condition of the tonsil.

PEARSALL.

Feilchenfeld.—Total Paralysis of the Accommodation after Eating Oysters.—*Klin. Monatbl. für Augenheilkunde.*—April, 1896.

Feilchenfeld reports a case of a patient who, two weeks previous to placing himself under his care, had partaken of a dinner of cooked oysters. One week afterward he was affected with paralysis of the accommodation, with blurring of vision for distance, accompanying which were a dryness of the throat and slight diarrhea.

The pupils were normal in size and reacted readily to light.

There was present a hyperopic astigmatism of 2.50 D. In order to enable him to read at 18 cm., after correcting his astigmatism, a convex lens of 3 D. was necessary. The patient recovered from the paralysis in two weeks.

Several others who partook of the oysters were seized with violent colic and diarrhea, soreness and dryness of the throat, together with inability to read.

RITCHIE.

Inouye, T. Jr.—Peculiar Color of the Fundus in the Mongolian Race.—*Centralbl. für prakt. Augenheilkunde.*—July, 1896.

The writer gives the following comparisons of the appearances of the eye-ground in the Mongolian and Caucasian races :

1. The color of the fundus in the Mongolian race is usually of a brownish-red, while that of the Western nations appears a yellowish-red. The pigment epithelial layer in the former is much thicker than in the latter ; therefore the blood vessels of the choroid can seldom be seen through the retina, and for the same reason the albino is very unusual. Finally the disappearance of the pigment epithelial layer at the periphery of the fundus is seldom noticed, although it is usually considered a senile change.

2. The edge of the optic disk appears to be more clearly defined than in the Caucasian race, and the greater the amount of pigment the greater is the contrast.

3. The reflex from the fundus in the Mongolian race is more

pronounced than in the Caucasian. There is no doubt but that the richer the eye-ground is in pigment, the more pronounced is the reflex from the retina. On this account it frequently follows that one cannot make as satisfactory an examination of the fundus in the Mongolian race.

4. The macula lutea appears an opaque blackish color, while the fovea appears darker than in the Caucasian.

In embolism of the central artery of the retina, the "cherry-red spot" was found to be blackish.

5. The atrophic ring about the optic nerve in glaucoma usually appears of a dark color, and is readily seen by the indirect method. By the upright image the dark-brown pigment is to be seen scattered about.

6. The appearance of the pigmentation after choroiditis is completely black.

RITCHIE.

Hess.—Displacements of the Crystalline During Accommodation.—Société Ophtal. de Heidelberg.—*Rev. Gén. d'Ophtal.*, No. 10, 1896.

In observing the image of his own crystalline lens, Hess observed that during accommodation it was displaced, in its relaxed zonular sac, in accordance with the law of gravitation. In fact, the direction of displacement is essentially dependent upon the position of the head. When turned toward the left or the right, the lens was seen, during accommodation, to fall toward the left or the right, whichever was the lower side. In bending the head forward, so that the forehead was a little below the level of the eyes, the crystalline was displaced forward, and was displaced backward when the head was in that position. These displacements, which occur only during accommodation, varied from .16 to .2 mm. After the instillation of eserine they increased to .42 mm. Measuring his near-point in these different positions, by new methods, the fact was noticeable that it approached nearer when the head was low, the difference amounting sometimes to .5 to .75 D. When the lens was displaced backward during accommodation, and the head was raised or lowered, a difference of .15 to .18 mm. was found. These new facts absolutely refute the theories of Schoen and Tschering, and may serve to make the problem clearer.

DEADY.

Greef (Berlin).—Anatomical Study of Pseudo-gliomata and Pseudo-tumors of the Eye.—*Société Ophtal. de Heidelberg.*—*Rev. Gén. d'Ophtal.*, No. 10, 1896.

I have examined the anatomical preparations classified under the name of gliomata, in the collection at Berlin, and have found a large number which, histologically speaking, were not gliomata. It is to these that I have given the name of pseudo-gliomata. It is always necessary, then, to examine all tumors removed from the eye as soon as possible. Gliomata, when fresh, are soft, grayish masses which, microscopically, ought not to be confounded with other tumors. Raete and Arlt have already noted that retinal detachments caused by exudative choroiditis may be mistaken for gliomata, and cases have been found where clinical examination is not sufficient to clear up the confusion. In incising freshly removed pseudo-gliomata, there flows out a thick subretinal liquid, lemon-yellow in color and filled with cholesterin crystals. These inflammations of the choroid generally accompany infectious diseases—cerebro-spinal meningitis, rupeola, scarlatina, tuberculosis, and congenital syphilis. They may be caused either by an embolism, which gathers the infectious germs to the choroid, or by the effect of the toxins produced. DEADY.

Philips, Wendell C.—Remarks upon the Causes and Prevention of Chronic Catarrh of the Nose, Throat, and Ear in Young Children.—*Am. Medico-Surg. Bull.*, No. 16, 1896.

The author notes the following as the most frequent causative factors in young children: The exanthematous diseases, especially measles; an inherited tendency to catarrhal conditions and at times to malformations, illustrated by a case in which both mother and child showed a peculiar enlargement of one tonsil, the other being normal. Climate is an important exciting cause. Acute rhinitis due to improper clothing, ventilation, etc., is considered by some to be one of the chief causes of chronic catarrh. Adenoid or lymphoid tissue in the vault produces middle-ear trouble either by extension of inflammation or by pressure upon the eustachian orifices. Traumatism, resulting in deformity of the septum or displacement and enlargement of the turbinates, is a very frequent precedent of catarrhal troubles.

Among preventive means is mentioned great care as to .

cleansing and antiseptics during convalescence from exanthematous fevers; the nasal and pharyngeal mucosa needing at this time all the aid possible in regaining its normal condition. Steam inhalations, carrying appropriate remedies, are advised. The best treatment for adenoid tissue in the pharyngeal vault is early and complete removal. The writer advises very strongly that the family physician should have very careful oversight of the diet, clothing, and ventilation allowed children under his care. Plenty of outdoor exercise is one of the best preventives of colds. Injuries to the nose, however slight they may be, should be carefully examined as soon as possible, and any interference with the normal relations of the structures or injury to the mucosa should receive immediate attention.

PEARSALL.

Hodgkinson.—**Vibration of the Vocal Cords.**—*Jour. Laryngol.*, p. 261, 1896.

Investigations concerning vibrations of the vocal cords by covering them with finely pulverized indigo. The insufflated powder acting in the same way as does sand sprinkled on a vibrating plate, by leaving the points of greatest vibration and collecting when the vibratory movements are the least. Experiments showed that the vibrations of the cord vary according the pitch and loudness of tone; the register whether chest or falsetto; and the healthy or diseased condition of the cords. With a chest tone of medium pitch the indigo leaves the edge of the cord in a convex line, which extends from the anterior commissure to a point just behind the vocal processes. This shows that the greatest amount of amplitude is in the center of the cord. If the pitch is lowered the line extends back beyond the vocal processes and is less curved, showing that the posterior part of the cords, including the vocal processes, are included in the vibration. During the production of falsetto tones the result is different. The indigo then forms along the cord near to and almost parallel with its free border. It spreads a little way toward the ventricular edge of the cord and then stops, the powder, lying on the cord between this point and the ventricular border, being carried into the ventricle of the larynx. The powder now presents the appearance of a dark line extending longitudinally along the cord parallel to its free edge except at the extremities, and dividing the cord into two l () ;

segments. Thus it is seen that in chest tones there is a vibration of the whole free edge of the cord, the amplitude varying with the pitch of the tone; in falsetto tones there is a vibration of the whole length of the cord but it is carried on in two segments—the first extending from the free edge to the nodal line represented by the dark line of powdered indigo, and the second from the nodal line to the ventricle.

PEARSALL.

Cheney, Fredk. E.—A Case of Tuberculosis of the Conjunctiva, Probably Primary, Followed by General Infection and Death.—*Boston Med. and Surg. Jour.*, November 12, 1896.

The patient, a girl of eleven years, applied at the Massachusetts Charitable Eye and Ear Infirmary, February 20, 1895. The history was that of lachrymation and the occasional discharge of yellowish matter from the left eye. There was slight ptosis, with œdema of the lid. On everting the upper lid, situated a little above and external to the center of the tarsal cartilage, was a fairly well defined oval spot of ulceration, about 6 mm. long and 4 mm. broad, with slightly elevated borders, while the base was occupied by numerous small, rounded granules, of a grayish-yellow color and imparting a "gristly" sensation to the touch, and which bled on slight irritation. The conjunctiva of both lids was moderately injected, while the retrotarsal fold contained a few shreds of a thick, stringy, yellowish matter. The eyeball was perfectly round. Examination of the right eye revealed nothing abnormal. The glands in front of the left ear were somewhat enlarged. She had a slight cough, which had persisted since an attack of measles for years previous; no sputum, no pain, appetite poor, constipation, and frequent attacks of epistaxis completed the symptoms. Examination of the lungs gave negative results; temperature 99.4°; family history negative.

Microscopic examination of scrapings of the conjunctival lesion revealed numerous tubercle bacilli.

On March 2 there was no apparent change in ulcer, but a few small trachoma-like granular elevations were noticed along the upper and inner border of the tarsal cartilage.

Five days later the growth had increased appreciably in size and was more of a grayish color. There were also two small, round, grayish ulcers, due to breaking down of the granules,

noticed at the last visit, while a swelling of the cervical glands on the left side was noticed for the first time. On March 9, under ether, the large tuberculous area, as well as the smaller ulcers at the inner portion of the free border of the tarsus, were carefully dissected out. There was no recurrence in the operated areas, but fresh points of ulceration appeared from time to time, along the border of the tarsal cartilage at its inner portion, which were removed and the surfaces cauterized.

After April 6, there was no further evidence of the disease in the conjunctiva. She was put on a nourishing diet and tonics administered with the result of improvement of her general condition, but the glandular enlargements increased in size, and the cervical glands of the right side became involved as well. On May 12 she commenced to lose flesh rapidly; there was a slight elevation of temperature, and an increase in the size of the glands, but no cough. Examination of the chest was negative. She died July 4, of the same year, from tuberculosis involving the right lung and mesenteric glands.

RITCHIE.

Ferras.—Laryngeal Hemorrhage Simulating Hemoptysis.—*Rev. Internat. de Rhinol.*, vi., 1896.

The case reported was in an amenorrhœic girl of twenty years, who presented a general condition suggestive of incipient phthisis. She was suddenly taken with a coughing attack which was followed by a considerable hemorrhage. There was no previous history of traumatism or of laryngitis. Inspection of the larynx showed two enlarged vessels near the base of the right arytenoid cartilage, containing an intravenous clot. There was no trace of bleeding at any other point. The laryngeal mucosa was injected, especially near the vocal cords.

PEARSALL.

Coe, Anton.—New Method of Treating Pterygium.—*Annals of Ophthalm. and Otology*, vol. v., No. 11.

Coe, acting upon the hypothesis that the cause of the growth was in the apex and that the vascular supply of new vessels was simply a result of a demand for nutrition, applied the cautery, at a red heat, to the apex (local sensibility having been previously destroyed by cocaine), with the result of causing complete disappearance of the growth in the two cases in which he had recourse to this method of treatment.

RITCHIE.

Mueller.—**The Reproduction of the Crystalline Lens after its Extirpation with the Triton** (Ueber die Regeneration der Augenlinse nach Extirpation derselben bei Triton).—*Archiv. für mik. Anat.*, xlviii., No. 1.

In attempting to prove the researches upon the reproduction of the crystalline lens with the triton which were carried on by G. Wolff, the author was led to precisely the same results. He stated that after the extirpation of this organ in the larva, there developed rapidly (in about thirty hours) a new lens which resembled precisely the one which had been removed. The pigment of the internal border of the iris was lost and its cells became cylindrical and protoplasmic in character. Soon after the operation the elements of the external edge near the pupillary border underwent a similar transformation, so that they appeared thickened and formed two epithelial layers, one anterior and the other posterior and continuous with each other at their free edges. Later the pupillary border, modified in this way, raised itself up at the superior border, in a little fold which projected more and more toward the pupillary space. This little fold then took the form of a vesicle attached to its point of origin by a pedicle. Then, by a process of development precisely similar to that which takes place in the embryo, a new lens was formed, which was finally separated from the iris and acquired the same characters which were found in the lens which had been removed.

DEADY.

Burstenbinder, O.—**Anatomical Examination of a Case of Retinitis Pigmentosa.**—(Anatomische Untersuchung eines Falles von Retinitis pigmentosa).—*A. von Grafe's Archiv.*, vol. xli. 4, 1895.

The case presented by the author was a man sixty-one years of age, whose vision had been failing for five years, and was especially bad in the evening. The left eye had been removed owing to a traumatic perforation of the cornea followed by suppuration. The visual acuteness of the other eye was six-eightieths. There was an annular scotoma with normal peripheral limits of the field of vision. The ophthalmoscope showed the presence of a typical retinitis pigmentosa. From this the author concludes that the enucleated eye probably was in the same condition. Microscopically it was shown that the retina was almost normal at the

macula and also at the periphery, while in a large zone between the two there were the grave changes due to pigmentary retinitis with a comparatively good condition of the layer of nerve fibers. At the points where the retina was diseased the choroid was thickened. This thickening was accompanied by complete atrophy of the capillaries and hypertrophy of the walls of the larger vessels, with here and there a marked narrowing of their lumen. There was also a moderate diffuse infiltration of round cells, which were gathered in compact masses. The writer agrees with Wagemann that, in retinitis pigmentosa, the retinal changes are secondary and follow the inflammatory alterations in the choroid.

Occurring in a man fifty-six years old without a history of consanguinity or syphilis, and accompanied by an annular scotoma, this would hardly be considered as a typical case of retinitis pigmentosa.

DEADY.

Tokarski.—Two Cases of Voluntary Myopia.—Neuropathological Society of Moscow, February, 1896.

The author reports two patients who were able voluntarily to make themselves myopic. The first was a man who could, at will, change the curvature of the lens without being obliged to change the point of fixation. He could produce this change equally well in monocular or binocular vision, and in the darkness or full light. He was able to maintain the maximum of myopia for about a minute, but after resting for a minute or two could again produce it. The changes in the curvature of the lens as determined by the ophthalmoscope amounted to eight or nine diopters. The second patient was naturally a myope, but could increase his myopia of six diopters to nine. It was necessary, however, to change the point of fixation. In neither case was there any anomaly of any part of the eye.

DEADY.

Todd, Frank C.—Report of a case of Epilepsy Due to Nasal Obstruction.—*The Laryngoscope*, October, 1896.

The patient, a farmer's boy, aged seventeen, had been having daily attacks of epilepsy for about a month; sometimes more than one attack a day. Aura, a faint feeling in stomach which passed to frontal region of head, then a pain in that locality that "knocked him down." Unconsciousness about half an hour (patient says he is not always unconscious) followed by drowsi-

ness and sleep. Examination of nares showed an enchondrosis almost closing left side. Post-nares clear. Cocaine caused contraction of tissues and allowed an escape of pus from frontal and ethmoidal cells, with relief of epileptic symptoms. Owing to the intoxicating effect of cocaine the spur was removed under chloroform. During the presence of tampon in nose the attacks continued, but upon its removal they ceased and have not returned since, a period of six months.

PEARSALL.

Oliver, Chas. A.—The Therapeutic Value of Hydrobromate of Scopolamine in Plastic Iritis.—*Am. Journal of Medical Sciences*, November, 1896.

As a result of a clinical study of the drug in question, extending over a period of $2\frac{1}{2}$ years, the writer finds it to be a most valuable acquisition to the list of drugs available in this affection. He prefers the hydrobromate to the hydrochlorate, as being less irritating and keeping better in solution without undergoing fungoid degeneration.

He has failed to observe any serious general intoxicant effects, although in certain cases he has made repeated instillations of the drug several times during the course of an hour, and attributes the absence of these symptoms to the manner in which he uses it, viz., everting the lower lid and maintaining pressure upon the canaliculus while the fluid is dropped upon the upper corneal limbus. He finds that it acts much more quickly upon inflamed tissues than even a stronger solution of atropine, and also that cocaine, instilled previously or even conjointly with it, increases its power to break freshly formed synechiæ.

He considers the instillation of two drops of a 1-1000 solution at an interval of one or two minutes, to be more efficacious than a single instillation of a 1-500 solution of the drug. He has never seen intraocular tension increased during the course of his experiments.

Among others he arrives at the following conclusions :

That the primary reparative action and quieting powers of the drug, as compared with similar doses of sulphate of atropine in the treatment of plastic iritis, are much more promptly attained with the former than with the latter ; this being true even when the latter was used in doses equal to quadruple or quintuple that of the former.

The duration of the healing and soothing powers of scopolamine are not as great as those of atropine.

That in incipient cases of plastic iritis when quick and active measures are eminently necessary, and also during the early stages of inflammatory reaction, the hydrobromate of scopolamine is preferable to the sulphate of atropine.

That where prolonged use of drugs of this class is necessary, the alternate use of the two drugs seems empirically to be the best method of local administration yet devised.

That the most efficient method of administration is in the manner above recorded, repeated, if necessary, as often as three times during the course of an hour, and preceded when desired, in cases attended with much pain and irritation, by a couple of drops of a two per cent. solution of cocaine a few minutes before each instillation of the scopolamine.

RITCHIE.

Foster.—Report of a Case of Bleeding from the Lingual Tonsils.—*The Laryngoscope*, October, 1896.

The patient, a school-teacher, aged twenty-five years, was pale, unable to sleep, had a very poor appetite and a constant hacking cough. Feeling of "tightness" and suffocation in the throat. Two or three times a day, during coughing, had a profuse hemorrhage. The lingual tonsil was found to be irritated, the veins swollen and much congested, so that touching with a cotton-covered probe would cause bleeding. The entire condition was removed by applications of electro-cautery to the affected tonsil.

PEARSALL.

BOOK REVIEWS.

SYSTEM OF DISEASES OF THE EYE. By American, British, Dutch, French, German, and Spanish Authors; edited by WM. F. NORRIS, A. M., M. D., and CHAS. A. OLIVER, A. M., M. D., of Philadelphia, Pa., U. S. A. Vol. i. Embryology, Anatomy, and Physiology of the Eye, with twenty-three full-page plates, and three hundred and sixty-two text illustrations. Philadelphia: J. B. Lippincott Co., 1897.

This is the first volume of what we hope and expect will be the greatest treatise on the subject which has ever been printed in the English language. It is so intended, and if the promise of the volume before us be sustained by the three to follow it, we have confidence that the desired result will be attained.

An endeavor has been made, so far as possible, to have each division of the subject treated by some writer who is recognized as an authority in the line covered by his article; and from the number of men of world-wide fame who are announced in the prospectus as contributors to the work, we are justified in anticipating valuable results.

The sections of the first volume are as follows: "Development of the Eye," by Jno. A. Ryder, Ph. D., Professor of Embryology in the University of Pennsylvania (since deceased).

"The Anatomy of the Orbit and the Appendages of the Eye," by Thos. Dwight, M. D., LL. D., Parkman Professor of Anatomy at Harvard.

"The Anatomy of the Eyeball and of the Intraorbital Portion of the Optic Nerve," by Frank Baker, M. D., Ph. D., Curator of Anatomy in the United States National Museum.

"The Microscopical Anatomy of the Eyeball," by Geo. A. Piersol, M. D., Professor of Anatomy in the University of Pennsylvania.

"Anatomy of the Intracranial Portion of the Visual Apparatus," by Alex. Hill, M. A., M. D., Cambridge, England, Master of Downing College.

"Congenital Malformations and Abnormalities of the Human Eye," by Wm. Lang, F. R. C. S. E., Surgeon to the Royal London Ophthalmic Hospital, etc., and E. Treacher Collins, F. R. C. S. E., Curator and Librarian to the Royal London Ophthalmic Hospital.

"The Dioptrics of the Eye," by Edw. Jackson, A. M., M. D., Professor of Diseases of the Eye, at the Philadelphia Poly-clinic.

"The Perception of Light," by J. McKeen Cattell, M. A., Ph. D., Professor of Experimental Psychology in Columbia College.

"Binocular Vision, Conflict of the Fields of Vision, Apparent and Natural Size of Objects, etc.," by Eugen Brodhun, M. D. Berlin, Germany.

"Normal Color Perception," by Wm. Thomson, M. D., Professor of Ophthalmology in Jefferson Medical College, Philadelphia.

"Photo-Chemistry of the Retina," by Carl Mays, M. D., of the Physiological Laboratory, Heidelberg, Germany.

One of the most interesting and valuable divisions of the work is that by Professor Piersol, on the microscopical anatomy of the eyeball, covering 164 pages. The care and precision shown in its preparation are worthy of all praise, and its attention to detail will make it extremely useful to the seeker for information, and fully entitles it to its position in a work of this character. Nothing is taken for granted, all statements on moot points being illustrated by the methods of research upon which they are based; the various conflicting theories of authors on the subject being presented, with the reasons for their advancement, and the latest conclusions. The bibliography includes publications appearing as late as the year 1896, bringing the subject-matter fully up to date.

Of scarcely less importance and equally worthy of mention, for thoroughness of treatment, is Professor Baker's work on the coarser anatomy of the eyeball, which is accurate, well written, and fully covers the subject.

Professor Thomson in his article on color perception discusses the various theories which have been promulgated, with the arguments for and against each, as presented by late authorities, and maintains that at the present time the modified Young-Helmholtz theory best meets all the requirements.

The chapters upon the perception of light, binocular vision, and the photo-chemistry of the retina are all excellent, the latter being especially interesting.

A section which we would have been glad to have had presented in greater detail is that upon congenital malformations and abnormalities of the eye, which, although containing much that is good, is very brief and superficial in places.

The paper, presswork, and binding are fine, and the volume is profusely illustrated with plates and woodcuts of a high order. The work will be a welcome and necessary addition to the library of every physician interested in the subject.

A MONOGRAPH OF SCIENCES OF THE NOSE AND THROAT. By GEO. H. QUAY, M. D., Professor of Rhinology and Laryngology in the Cleveland Medical College, Member of American Institute of Homeopathy, etc. With seventeen illustrations. Pp. 214.

In this monograph the principal diseases of the throat and nose are presented in a very clear yet brief and concise manner.

The various diagnostic points are made plain, and the indications for treatment and general handling of the case are very clearly and forcibly put. The work is intended as a handbook for the student and general practitioner, who want their information presented in condensed form and require the subject-matter to consist of known and established facts rather than disputed theories of pathology and treatment.

We would especially commend the amount of space and careful consideration given to the therapeutics of the subjects taken up. This is a division very much neglected by homeopathic writers on diseases of the nose and throat, while, at the same time, it is one that should receive the most thoughtful attention.

OPHTHALMIC OPERATIONS AS PRACTICED UPON ANIMALS' EYES.

By CLARENCE A. VEASEY, A. M., M. D., Adjunct Professor Diseases of the Eye, Philadelphia Polyclinic, etc., with fifty-six illustrations. Philadelphia: The Edwards & Docker Co., 1896.

The object of this little work is to assist the beginner in the study of ophthalmology, by acquainting him with the various operative procedures, through practice on animals' eyes. For this purpose the choice of eyes, the proper time for removal from the animal, and the methods of preserving are considered, together with a description of the various masks and the necessary details to be observed. The operations upon the cornea, iris, lens, capsule, sclera, and muscles are described, and the instruments to be used are noted. The little work is clear and concise, and should be useful.

ITEMS.

Dr. Chas. C. Boyle has been elected a member of the Board of Governing Surgeons of the New York Ophthalmic Hospital, vice Dr. Henry C. Houghton, resigned. Dr. Boyle's long service and intimate knowledge of the affairs of the institution should make him a valuable member, and his appointment is a source of satisfaction to his colleagues on the board.

DIED.—On December 1, 1896, of typhoid fever, Frederick Morton Wall, M. D., Assistant Surgeon New York Ophthalmic Hospital, Throat Department.

THE JOURNAL OF OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY.

EDITOR.

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HETEROPHORIA.

A SYMPOSIUM.

THE subject of heterophoria, as formulated by Dr. Stevens, has for a number of years excited general interest among ophthalmologists. While the conditions considered under this head had been recognized, and after a fashion treated, before Dr. Stevens' work was published, the fact remains that to him belongs the honor of having placed it upon a scientific basis, of having given it a distinctive nomenclature, and of being the originator of many of the tests used in its recognition, and of the implements necessary for its treatment.

The medical profession is especially slow in accepting new theories and in adopting the opinions of individuals, and there has been no exception to the rule in the present instance. Dr. Stevens' conclusions have excited much controversy, and the reception they have met with has varied from an absolute denial of their soundness, on the one hand, to a most enthusiastic indorsement, on the other.

As the result of the division of opinion we have surgeons who believe in operating all cases, others who exercise all cases, and still others who vary the treatment according to the individual requirements. As time passes and investigation proceeds, the chaff is gradually being sifted from the wheat; greater precision is being attained in both diag-

nosis and treatment, and the various procedures advocated are finding their proper level and are being more and more intelligently applied, the beneficial results of their use being thereby correspondingly increased.

Our brethren of the old school have freely ventilated their opinions upon this subject in the pages of the medical press, and while this has obtained to a certain degree in our own school, there has thus far been no general expression of opinion upon the subject.

With a view of obtaining such an expression of opinion from as many homeopathic oculists as possible, we, some months ago, prepared and had printed a list of questions designed to bring out a full discussion of the subject, and which was sent to every physician practicing this specialty whose address we could obtain. The answers thus far received, although entirely too limited in number to attain the object desired, will be found printed in the order of their reception, so far as our space allows. So long as any are received we shall continue to publish them, and we earnestly request all physicians having had experience in this department of ophthalmology to give our readers the benefit of their thoughts on this subject, by sending us as soon as possible their replies to the questions which are here subjoined.

Articles will be much more readable and satisfactory, if each physician will refrain from answering the questions categorically, but taking each question as a text, write his personal experience of the subject-matter therein contained.

1. In what proportion of your cases do you find heterophoria?
2. What forms of heterophoria do you meet with most frequently?
3. In what class of patients—so far as temperament and occupation are concerned—do you find heterophoria of the most frequent occurrence?
4. Have you observed any peculiar characteristics, either mental or physical, accompanying the various forms of heterophoria? If so, kindly state them.

5. With what varieties of refractive error do you find heterophoria most frequently?
6. What forms of heterophoria and refractive error do you find most frequently associated?
7. In what proportion of cases do you find heterophoria without refractive error?
8. What tests have you used for heterophoria, and which have you found the most satisfactory?
9. Do you measure the power of the various muscles by means of prisms as a routine practice?
10. What object do you have the patient fixate in conducting these tests (composition and form)?
11. What means do you use to measure the amount of heterophoria (prisms, Zeigler's chart, Herbert's scale, etc.)?
12. What is the actual distance at which the tests are made?
13. Have you found apparent discrepancies in the *different* tests applied to the same individual during a given examination?
14. Have these same apparent discrepancies in the various tests been borne out repeatedly in any considerable number of cases?
15. If so, kindly state what these are.
16. Have you observed different degrees of heterophoria in the same individual at different sittings where identical tests were used, and if so, what extent of variation have you found?
17. Has the *same* test, applied at different times during a given examination, yielded results at variance one with the other?
18. If so, in what class of cases, and in what form or forms of heterophoria, was it observed?
19. In your judgment, what is the explanation of these inconsistencies?
20. What is your customary method of dealing with heterophoria?
21. What effect has the correction of anomalies of refraction seemed to exert upon the various forms of heterophoria?
22. Do you practice "graduated" or partial tenotomy, or tendon advancement for the relief of a certain class of these cases? If so, kindly state the indications which, in your opinion, call for operative treatment.
23. What method do you pursue in operating?
24. In your opinion, what is the relative danger of overcorrection of the various muscles as compared with each other?
25. What have been the results (immediate and ultimate) as far as the correction of the heterophoria and the relief of the asthenopic symptoms are concerned?

26. Do you practice "training," by means of prisms, in heterophoria? If so, what varieties have you found most susceptible of relief by this means, and what methods have you used in its application?
27. In your experience, does the existence of any variety of heterophoria convey any information as to the necessity for the use of a mydriatic in testing the refraction of the patient?
28. Is it your practice to develop "latent" heterophoria by prescribing prisms to be worn with the bases toward the apparently weakened muscles, and by increasing the strength of the prisms as the supposed "latent" heterophoria becomes manifest?
29. What is your opinion as to the advisability of operating for heterophoria developed by this means?
30. Are you in the habit of prescribing prisms for the purpose of neutralizing existing heterophoria, and if so, what are the results of your experience with this method?

Kindly forward your communication to

CHARLES DEADY, M. D.

110 West Forty-eighth Street, New York City.

H. F. FISHER, M. D., KANSAS CITY, MO.

No. 1. In 382 cases, the records of which are at hand, I find 147 cases of heterophoria, a little over 38 per cent. In 52 cases tested in 10 days recently, I find that 34 per cent. of them had heterophoria in some form.

No. 2. In the 147 cases referred to, I find there are 50 cases of hyper-exophoria (34 per cent.); 41 cases of esophoria (28 per cent.); 36 cases of exophoria (25 per cent.); 14 cases of hyper-esophoria (9 per cent.); 9 cases of eso-ex, or exo-es, ophoria (6 per cent.), these are included above; 6 cases of hyperphoria (4 per cent.) and one case of cyclophoria. By exo-esophoria is meant exophoria at distance, esophoria near.

No. 3. I have paid little attention to the temperament, but as far as I can remember, the majority were of sanguine temperament; and all were persons who used their eyes a great deal for near vision: students, bookkeepers, dentists, and parties doing fine work.

No. 4. In many cases I have noted the contraction of the eyebrows; an expression of pain; and in some of the patients, a dull, disinterested look, which disappeared after the correction of the refractive *and* muscular anomalies. Also I believe that two cases of an epileptoid character have been permanently

relieved. The manifestations have not appeared in the past two years, whereas before they appeared weekly or oftener.

No. 5. Ninety out of the 147 cases of heterophoria existed in cases of compound hypermetropic astigmatism (60 per cent.); 42 cases had hypermetropic astigmatism (nearly 30 per cent.; the other 10 per cent. was divided as follows: 9 had hypermetropia, 6 had myopic astigmatism, 4 had myopia, and 1 had mixed astigmatism.

No. 6. Hyper-exophoria and compound hyperopic astigmatism, 27 cases; esophoria and H. As., 21 cases; exophoria and H. As., 20 cases.

No 7. Less than 1 per cent.

No. 8. Maddox Rod, Maddox "Double" Prism, Prisms, and Cards. Prefer them in order named; always use two, that I may verify one with the other.

No. 9. Not always, but do if time permits.

No. 10. A Candle, unless using the cards; the latter I have almost discarded.

No. 11. Prisms almost exclusively, occasionally the charts.

No. 12. Always at 20 feet, for distance; about 14 inches for near vision.

No. 13. Only occasionally, and then I attributed it to a mistake upon my part.

No. 14. So seldom that I have had reason to believe that I had been in error at the first.

No. 15.

No. 16. Occasionally, but the variation never exceeded 2°; sometimes I detect a hyperphoria that was not manifested previously.

No. 17. Possibly; but if it did I have not made any note of it.

No. 18.

No. 19. Inattention upon the part of the patient, or a misunderstanding of what was required of them.

No. 20. Correct the refractive errors first, have the lenses set properly before the eyes, being sure that the pupillary distance is correct. This in the majority of the cases will give the desired relief; "prismatic exercise."

No. 21. Correction of refractive anomalies has, in all but 5 out of the 147 cases of heterophoria, exerted a beneficial influence, it alone in the majority giving the desired relief; and in

those cases that I could keep track of subsequent examination revealed a less degree, or total absence, of the heterophoria. In the South, where these cases were found, we have no opticians, all our prescription work is made to order for us, and mistakes, if any, must be corrected at our expense ; hence the glasses are fitted more accurately, I believe, than they are in other sections that I have visited. In my estimation the fitting of the frame is as necessary as the fitting of the lenses, and to this I attribute my success in relieving many of my cases. In several instances where I have had the pupillary distances altered slightly, without changing the lenses worn, the patients would experience the greatest relief at once.

No. 22. Have never done an operation for heterophoria. If persistent "prismatic" exercise does not yield the desired results, when combined with electricity, I have advised operation, but the patients have always refused. So far I have not considered it necessary in more than six cases.

No. 23. .

No. 24.

No. 25.

No. 26. Yes ; exophoria, esophoria under 9° , and hyperphoria of less than 2° . My method of exercise is to place the prism in the proper position, base in the direction to exercise the weakened muscle, hold it there until monopia occurs, and keep the single image 10 seconds, then rest 10 seconds ; after having treated one eye in this manner four times I treat the other in a similar manner ; this exercise is persisted in for ten minutes daily, or every other day, until all muscular difficulty has disappeared. After the use of the prisms I administer galvanism, positive pole over the muscle, negative on the back of the neck, then to the temples ; this usually for the first half dozen treatments. As the ability to overcome greater degrees of prisms occurs, they are given.

No. 27. In all cases of heterophoria in children I use a mydriatic ; in adults seldom find it necessary, but if I do, I invariably use it. It has been my experience that glasses given to adults where a mydriatic has been used are seldom satisfactory.

No. 28. Never.

No. 29. Personally, I would not operate for a heterophoria that had been made manifest (I claim induced) by the use of prisms to develop latent heterophoria.

No. 30. Occasionally I prescribe prisms to be worn ; though only in cases that I cannot have under observation as frequently as I desire, and never the full strength, giving the muscles some work to do. Most frequently the prisms are prescribed in cases of hyperphoria, divided between the two eyes, and their strength reduced as rapidly as possible. In one case of *hyper-esotrophia*, with oblique astigmatism, I prescribed a $5\frac{1}{2}^{\circ}$ prism for each eye, base same axis as the lenses, with decided relief. So satisfactory have these lenses proved that the patient refuses operation. I saw him four years afterward and he says "I can see as well, and with as much comfort, as I ever did."

H. C. ANGELL, M. D., BOSTON, MASS.

1. Nearly all.
2. Esophoria.
3. Neurasthenia and asthenopia. The studios.
- 4.
5. Hypermetropia.
6. Esophoria. 2 Hypermetropia.
7. Perhaps 2 per cent.
8. Maddox.
9. No.
10. Electric light through a small hole in a dark shade.
11. Prisms.
12. 18' (Eighteen feet.)
13. Yes.
14. No.
- 15.
16. Yes ; 3° or 4° in strength of int. rectus.
17. Yes ; due to fatigue of muscles probably.
18. The weak and neurasthenic. Exophoria mostly.
19. Neurasthenia.
20. Let it alone. Exceptionally prescribe prisms.
21. Makes it unnecessary to treat the heterophoria.
22. No.
23. Partially divide the muscle at its insertion.
- 24.
25. The results are not uniform. On the whole, not satisfactory.

26. Only in exophoria, by prisms, base out, in the hands of the patient for a few minutes, daily use.

27. Yes. Esophoria.

28. No.

29.

30. Sometimes useful in all kinds of heterophoria, more especially for very sensitive neurasthenic, hysterical people. Often of benefit in exophoria. Often of benefit in the hysterical through suggestion. A corrective prism bridges over the defect until the improvement in the health renders it unnecessary. In a healthy person heterophoria is of little import.

E. H. LINNELL, M. D., NORWICH, CONN.

1. Without consulting my records, I should say probably in 50 per cent.

2. Exophoria is the most frequent form, and hyperphoria occurs next in frequency. I find left hyperphoria more frequently than right hyperphoria.

3. In students, bookkeepers, seamstresses, and those who use their eyes constantly for near work, and especially in individuals of nervous temperament.

4. I have observed no such peculiar characteristics aside from the usual manifestations of asthenopia, and the reflex neuroses which so often accompany heterophoria, and which are familiar to all observers.

5. Hypermetropia and hypermetropic astigmatism.

6. Exophoria with hypermetropia, and esophoria with myopia.

7. Seldom.

8. I use the Maddox rod for distant testing, and Stevens' photometer for near vision, and find them, as a rule, quite satisfactory. Other tests are used occasionally.

9. Frequently, and always before deciding upon operative measures, but not as a routine practice.

10. A small gas flame with Zeigler's chart behind it, so arranged that the horizontal red and the perpendicular black lines intersect just behind the middle of the flame.

11. Prisms.

12. Sixteen feet.

13. I find, quite frequently, esophoria at a distance, and exophoria at the near point, but I have not often observed discrepancies at the same distance.

16. Yes. Several degrees.

17. I do not remember such an instance, but I do not often repeat the same test during a single examination.

19. Spasm of one or more of the ocular muscles, associated with strong efforts of accommodation.

20. I always consider any existing heterophoria in prescribing glasses. I am inclined to prescribe a stronger plus glass when esophoria exists than when there is exophoria. In the latter case I frequently decenter the lenses inward. When no marked asthenopia exists I frequently disregard the heterophoria. In other cases I wait to see the effect of correcting the refractive error before treating the heterophoria. When the symptoms demand it, I exercise the weak muscles, or relieve the strain by the use of prisms. I reserve tenotomy for a last resort.

21. It frequently diminishes the amount of heterophoria and relieves the attendant asthenopia, and sometimes muscular equilibrium is restored.

22. I have very seldom done a tenotomy for heterophoria. I reserve it for high degrees of deviation and cases not otherwise relieved by persistent treatment.

24. I think the greatest danger of overcorrection obtains in operating upon the vertical muscles, and there seems more danger in operating upon the external than the internal recti.

25. In my very limited experience the results have been satisfactory.

26. I do. Exophoria is altogether more susceptible of relief than any other variety. I frequently correct vertical deviations temporarily, but I find they are apt to return.

I formerly had the patients come to my office for treatment with prisms. The patient fixed, the gas flame and prisms of gradually increasing strength were placed before each eye separately until the resulting diplopia could no longer be overcome. The practice was followed by galvanization or faradization of the weak muscles. Latterly, out of consideration for the expense to my patients, I have furnished them with a set of prisms to use in the same way at home, or have furnished them a pair of prisms in a spectacle frame to be worn continuously for ten or fifteen minutes twice a day for distant vision exclusively. In other instances I direct them to look at a light across the room and alternately raise and lower the spectacles; thus first fixing

the light without and then with the prisms. I am uncertain which of these latter methods yields the better results.

27. I think esophoria is more frequently associated with spasm of accommodation than any other form of heterophoria, and hence I regard it as an additional reason for using a mydriatic when there exist other indications for such use.

28. No.

29. I think it ill-advised and unreliable.

30. I do so frequently, and with very gratifying results in the majority of cases.

WILLIAM WOODBURN, M. D., DES MOINES, IA.

In reply to yours of January 24, asking for my experience in heterophoria, I will say that at least 40 per cent. of the refractive cases consulting me have some form of disturbance of muscular balance. I find exophoria the most common form, and most frequently associated with hyperopic errors, usually astigmatic, either simple or compound. In not more than 2 per cent. of my cases do I find heterophoria without refractive error. I use the prism test, but not as a routine practice unless the case has been "fitted" repeatedly before coming to me without satisfaction, or I find only slight refractive error present; then I test the muscles, first by covering one eye and having the patient fix, with the other at fifteen or twenty inches, on some moving object, usually the point of a lead pencil, for a few seconds, then as the occluded eye is released, note the deviation if any. When using the prisms the distance is eighteen feet. I have not found the relative power of the muscles to change at the same sitting, but have noted marked variations in some cases at different sittings by the same test, sometimes as much as 6° or 8° . I do not attempt to incorporate a prism into any prescription the first time the patient puts on glasses, except where there is no refractive error manifest. I consider all forms of heterophoria "relative," and the trouble in a large majority of cases will disappear or cease to trouble when the refractive error, an "absolute" condition, has been taken care of. For this reason I never incorporate the prisms in the first prescription unless the patient has worn them with relief, or there is nothing but a muscular disturbance.

I have no confidence in that form of treatment known as "muscular exercise" by the use of prisms of varying power. I

don't believe it will cure 5 per cent., and it will be extremely difficult to have patients persevere in their use, because of the necessary time and annoyance. My custom is to correct the refractive error first; then, if there is still trouble, I incorporate a prism of 1° or 2° less strength than is shown by the test, provided the test does not show more than 5° or 6° variation. If a greater variation is shown continuously at repeated examinations, I advise partial tenotomy. I have no experience with advancements, but observation has not given me a favorable impression. Tenotomy seems to me much more rational, and has given better and more satisfactory results than I have gained by the use of prisms, except in cases of mild degree.

F. PARK LEWIS, M. D., BUFFALO, N. Y.

Among the various subjects serving as a basis for medical disputation, about none have the differences been wider and apparently more irreconcilable than in disturbances of balance in the ocular muscles. Recognizing as all do that eye strain in some of its forms is not infrequently a source of very profound systemic affections, the source of the trouble has variously been attributed to errors of refraction and imperfect muscular adjustment; some insisting that, when focal corrections are properly made, the muscular balance will readjust itself without assistance, and others stoutly maintaining that any muscle strain is most pronounced in its effects, requiring most judicious care, even when all refractive errors have been relieved by suitable glasses. A series of categorical inquiries sent out by the editor of the *JOURNAL OF OPHTHALMOLOGY, OTOTOLOGY AND LARYNGOLOGY* is very pertinent, and an endeavor to answer them may not be without value to others than special practitioners.

Heterophoria is a deviation from a normal balance of the ocular muscles. Dr. Deady's first inquiry is, "In what proportion of your cases is heterophoria found?" To answer this question intelligently, I took the first 200 of my last 1000 case records for analysis, believing that that would fairly represent my usual practice. The result was both interesting and instructive. I found that of those 200 cases I had made no muscular test of 111, the reason being that these were obviously cases in which it was not necessary. They included all inflammatory lesions, degenerative changes, refractive cases

in which the correct prescription was immediately satisfactory, traumatism, foreign bodies, etc. In 89 of the 200 cases, therefore, the muscular conditions were carefully noted. Of these the muscular balance was found absolutely normal in but 7, while heterophoria in some form was present in 82. The form most commonly met was exophoria, of which there were 37 cases. Esophoria occurred in 20, esophoria for distance and exophoria in the proximal test in 7, hyper-esophoria in 8, hyper-exophoria in 5. A further analysis of these cases showed, however, that of these 89 cases, in 27 only was the muscular disturbance of such a character as to require attention. In 62 cases one form or another of muscular disturbance was present; sometimes in a tolerably high degree without causing any discomfort whatever, and was relieved when the correct prescription for glasses was given. Of the 27 cases which required special attention because of muscular defects, 1 was a diplopia due to paresis of the abducens, and which was relieved by treatment, and 1 strabismus divergens which was corrected by the usual operative measures. Four were the result of general muscular weakness, and were treated by exercise and constitutional measures. One a case of hyper-esophoria in a highly neurotic subject and in a very obscure case, remaining in much the same condition after a graded tenotomy of the internal rectus and in 1 a correction of 6° of hyperphoria in highly myopic eyes gave no relief, and I was led to conclude that the cephalalgia had other than an ocular origin. The remaining 19 cases, however, were interesting. The first patient, who had been under my observation for a number of years and never could wear her compound myopic glasses with much comfort, was found to have 8 degrees of right hyperphoria. By combining prisms with her focal lenses, her relief was very marked and permanent. The second, a young woman who had suffered for a year from conjunctivitis, and who had almost no focal lesion, was entirely and promptly relieved by graded tenotomy of the interni, for the relief of her esophoria. The same is true of the third case, except that asthenopia, rather than conjunctivitis, was the form of disturbance from which she suffered. The fifth case was one of marked exophoria. Exercise prisms had been worn without benefit, when I concluded to re-refract again to determine the focal result, if possible, with greater exactitude. An exceedingly small amount of hyperopic

astigmatism was developed at odd angles which before had never been found. The exact correction of the focal error gave more relief than prisms had ever done. The sixth case was one in which the proper glass failed to give relief until the hyperphoria was corrected by a prism combined with this focal lens. The next case was one of myopic astigmatism of a high degree with exophoria. The constant use of exercise prisms, with rest from excessive use of the eyes, relieved the strained interni. The next case was one of epilepsy with an enormously high degree of esophoria. A graded tenotomy of the interni was made, and the patient is still under observation, but there are obviously other abnormal conditions present in this case, and it is exceedingly doubtful that the esophoria is more than a contributing cause. I have not learned that the convulsive seizures have been relieved by the lessening of the eye strain. The next, a case of asthenopia, showed 9° of hyperphoria, with 25° of proximal exophoria with asthenopia and general nervous disturbances. The use of vertical prisms gave complete comfort, and the exophoria was markedly lessened. The next, a neurotic boy, had been unable to use his eyes, which were astigmatic to a small degree, and he suffered greatly from nervous dyspepsia, but was greatly relieved by graded tenotomy of the interni. In all of the remaining cases, exercise or relieving prisms were used except 2; prisms were used either for exercise or relief, and in every case with marked benefit. In one of these, tenotomies were performed for esophoria with satisfactory results, and in the other, in which no hyperphoria was at first manifested by the use of prisms, 9° of latent hyperphoria was developed, and a tenotomy of the left superior rectus relieved a pressure in the vertex which had been present for fifteen years.

The analysis of this handful of cases is, in fact, the summary of the whole subject. We are not dealing with a machine in our work upon the human eye, but upon elastic muscles and sentient nerves in which temperament, and physical and psychical conditions must, of necessity, play an important part.

As we have seen, in a large number of the cases examined normal muscular balance is the exception, but when the strained accommodation has been relieved by proper glasses, all discomfort and reflex manifestations disappear.

There seems to be a critical time in the life of the growing boy

or girl, when muscular weaknesses are more apt to be present than at any other period. From fourteen to sixteen, as Dr. G. Stanley Hall has observed, there seems to be often a rapid development, which absorbs so much of the physical strength as to leave the muscular system comparatively weak and relaxed. This frequently finds its first manifestations in the eyes, and usually in the form of exophoria, especially if the refractive error be small or myopic.

A careful study of such children will usually give evidence of other weaknesses, and it would be the part of wisdom under such circumstances to limit the amount of work required both for brain and eyes, to insist upon a superabundance of pure air, good food, healthful exercise, and sufficient sleep.

A like condition is not infrequently found at any age, after exhausting diseases, especially diphtheria, when a like regimen must be followed.

There is still another class of cases in which the refraction has been corrected, but in which muscular disturbances are present, and seem to be the source of either local or reflex difficulties. These may, in some cases, be relieved by a more careful and more exact focal test than has previously been made.

It is never safe to conclude that the angles of astigmatism are synchronous, and an angle of 5° may measure the entire distance between misery and comfort.

In order that my conclusions may be reached with greater exactitude, I have had constructed, following the suggestion of Dr. Gould of Philadelphia, a special series of test glasses having a focus of an eighth of a diopter, of both concave and convex, spherical and cylindrical lenses, and with these I finish every refractive test, with the view of making the focal adjustment as nearly mathematically exact as human fallibility will permit.

But, after all this has been done, there will still be found a small minority of cases in which there is unquestionably eye strain of a most serious character.

In this class of cases, as Ranney has pointed out, we rarely have evidences of disturbances in the eyes and reflexes at the same time.

If the eyes suffer, reflexes are not infrequently absent, while the most serious reflexes, especially those affecting the stomach or the general nervous system, are not those in which discomfort

is felt in the eyes. Latent muscular anomalies may require great patience and care, and a variety of methods for their demonstration.

The human system has a limited amount of energy with which to do its work, and if an excess is demanded for the proper performance of one function, some other function must in time suffer. So the eyes may work smoothly by the employment of an immense amount of nervous energy, but always at the expense of the brain, the spine, the stomach, or some other organ.

The eyes, having once accustomed themselves to do their work, by means of an unconscious draft upon the nervous system, often enduring through years, sometimes from birth, are very tenacious of their hold upon this nervous force, and only with the greatest difficulty can be made to relax sufficiently to give any true result in answer to the most exacting tests.

The most trustworthy tests which I employ are Prentice's card and Maddox's rod. The tests are made at a distance of twenty feet, and not infrequently prove variable and confusing.

Discrepancies appear, as the muscles grow tired, in the same individual and with the same tests. It is simply necessary to patiently persevere until the true condition is demonstrated.

Esophoria most commonly appears, naturally, with hyperopia and hyperopic astigmatism; but it may appear with any refractive error as may any of the other forms of heterophoria.

The relief of these conditions may often be found in a correctly adjusted prism. I now never make a tenotomy for a low degree of hyperphoria, although in the higher grades operative measures give most brilliant results.

Tenotomy of the externi is not ordinarily as satisfactory as that of the internal rectus. In suitable cases the surgical correction of esophoria proves most gratifying.

And the conclusion of the whole matter, which the premises would seem to justify, is :

First. That we are not prepared to consider muscular troubles, nor to take any steps toward their relief until the accommodation has been relaxed by a mydriatic, and the refraction taken with the greatest possible nicety.

Second. That the systemic, as well as the local condition, must be carefully studied. The patient must be individualized, and the diagnosis made with judgment and discrimination.

Third. Recognizing the fact that we are dealing with muscular structures, susceptible of development as are other muscles, they must be treated physiologically with exercise or rest as the condition may demand.

And finally, in that small but important class of cases in which we have made evident that surgical inventions alone will give relief, we must locate the abnormal muscle with exactness and operate with scrupulous care.

We can in this way only rescue this branch of ophthalmology from deserved opprobrium.

FRANCIS B. KELLOGG, M. D., TACOMA, WASH.

I am very glad you are going to make a systematic record of the experience of our school in the matter of heterophoria. My own experience will be, I fear, of a negative value. Really, the only satisfactory results I have had have been in a few cases of exophoria in accommodation, where excellent results have been attained by Gould's method of systematic stimulation of innervation by prisms of increasing strength, base out.

Esophoria I have tried, in a few cases, to treat in a similar manner by prisms (much weaker), base in, but uniformly with unsatisfactory results. I have never resorted to graduated tenotomy. In the few cases where I have proposed it, it has been declined. I have used the Maddox rod for testing at a distance, with candle flame and prisms for measuring. I have attributed considerable of my unsatisfactory experience to inadequate apparatus, but have never quite persuaded myself that the benefits to be derived warranted the purchase of expensive machinery. I remember Dimmer of Vienna stating that his brother-in-law and associate, Fuchs, had given Dr. Stevens' theories a test with several hundred cases, with the conclusion that their importance had been much overdrawn by their promulgator. I think he found only one case in some two hundred (or four hundred, I forget which). With such views entertained by such men, and with others like Roosa scouting the whole matter as a sad, pure and simple, it is difficult to feel justified in giving it the importance which many oculists attach to it. Such an experience as the following is also rather discouraging: A young lady patient with distance esophoria of $3\frac{1}{2}^{\circ}$ with Maddox rod: testing with single prism before one eye, base out, each internus over-

came 24° , while, with base in, each externus overcame 8° . According to various authorities, the proportion of tension power between interni and externi should be as 6 to 1. Confident that I could develop the interni, I set to work to bring them up to their 48° by exercises with prisms, bases out. When they had climbed to 38° , I tested with Maddox rod, only to find that I had increased the esophoria to 7° . Somewhat startled at this, I dropped the interni, reversing the process, and tried to bring up the externi by practice with prisms, base in, and candle flame, at first near and then withdrawn. In this way I brought the esophoria back to 4° , which was $\frac{1}{2}^{\circ}$ more than when the case came into my hands. At this point she went into the country for a rest, and since then I have had no opportunity to examine her. I feel sure, however, that there has been no material improvement.

Now what is one to do with esophoria at distance and exophoria in accommodation?

I have never tried to develop latent heterophoria. In the few cases where I have prescribed or tried prisms for low grades of heterophoria, I have generally felt obliged to give them up as unsatisfactory.

I do not regard my experience as demonstrating at all the overestimation of the importance of heterophoria. I have no doubt it shows an underestimate of its importance, and I shall read with much interest the experience of others in this field.

BY HAYES C. FRENCH, M. D., SAN FRANCISCO.*

The proposition to gather into a final analysis the experience of the oculists of our school of medicine upon the subject of heterophoria must prove immensely instructive to the profession, stimulating to still greater and more careful research upon this very important subject, which from the first has found but few, and too often lukewarm, advocates; and the study can but result in great benefit to the numberless victims of this protean malady, who might have found relief from an intelligent employment of graded tenotomies if not from successful prism practice. We congratulate the editor upon the introduction of this method, which has proved so useful and popular in earlier numbers of this JOURNAL upon the subjects of Trachoma and Cataract Extractions, and we would urge its more general employment in dealing with

* Diagnosis only, in this paper.

the many difficult and often mooted questions which daily arise in the pathway of the eye-specialist. Ever since Stevens' "Functional Nervous Diseases" became a part of my medical library in 1887, I have, as a routine practice, measured the power of the ocular muscles, as far as possible singly, also their relative strength, using my own phorometer, a simple device; my objection to Stevens' phorometer, which also ornaments my office, having been given in a former paper in this journal. After the trial of various methods I employed as a fixation object a white vertical cross, about an inch in length, upon a black background at a distance of twenty feet. Since adopting this practice I have found some degree of heterophoria, either at the far or near point, in at least 75 per cent. of my cases. While questioning whether any degree of heterophoria is, strictly speaking, physiological, we frequently, almost constantly, find deviations in muscular balance of from to $\frac{1}{2}^{\circ}$ to 1° with apparently perfect visual function—especially is this true in esophoria associated with even low degrees of manifest or latent hypermetropia; the employment of a weak plus glass frequently restoring the muscular balance. In looking through my case-book for years I'm struck with the frequency with which from 4° to 7° of exophoria, in accommodation, have been associated with from $\frac{1}{2}^{\circ}$ to 2° of esophoria at the distant point. In the single deviation, exophoria has been found most common in my practice, and associated with the nervous or encephalic temperament, principally in clerical or professional pursuits, in overworked school-girls, and in ambitious and self-supporting college students. The exophoria in these cases is usually developed suddenly, after some unusual mental and ocular strain, and is often associated with general neurasthenia and most frequently with spherical or astigmatic myopia, or both. Our lamented colleague, Dr. George S. Norton, early in his distinguished and indefatigable labors, enunciated, if he did not discover, a law which has certainly proven the rule through all the years of my labors and observation in the study of muscle anomalies, viz.: "Exophoria is most commonly associated with myopia; and esophoria with hypermetropia." When these conditions are reversed, as a rule, the oculist finds complications that will tax all his resources, and his patience, as well as that of the patient, to the utmost. Cases of pure heterophoria, unassociated with some form of ametropia, are

in my opinion very rare ; though the refractive error may be small, and even latent, faithful search will usually be rewarded by its discovery, and, when found, it will be related to the muscular deviation in accordance with the law already cited. Having tried every known device that had any reputation as a means of discovering the character and degree of heterophoria, I have adopted a simple horizontal bar, adjustable to the height of the patient, with sliding grooved holders for my prisms. At the end of the bar is fixed a 7° prism with base down for the separation of the images, to determine the presence or absence of esophoria or exophoria, while hyperphoria is discovered by the combination of prisms, base in, in the regular prism-holders; the degree of deviation being measured by trial with prisms. Any one who will compare this method with the use of Stevens' phorometer will find that while the Stevens instrument will often show a degree of heterophoria beyond its power of measurement, and often, when within the scope of its scale, a constant variation in measurement, the simpler method will frequently reveal a smaller and more fixed degree of heterophoria. These discrepancies have been observed in many and varied cases, ranging through years of my daily record; and for this reason the writer would not feel justified in operating upon a case of heterophoria on the sole testimony of Stevens' instrument, unsupported by other tests. It is very important in these examinations to observe a uniform distance of the fixation object from the patient, and the most experienced observers have determined upon twenty feet. In some cases, particularly in nervous and overworked female students, we often obtain a very wide range of measurements at the same sitting, and no definite or uniform records from examinations at different visits. The writer has been surprised to find how few oculists, comparatively, have given serious and practical attention to this branch of every complete ocular examination, and for this reason we look for a great improvement, and the awakening of new interest in an important and neglected subject, through this series of papers. In making these tests upon a nervous subject, to obtain reliable results the patient must be educated and taught the knack of supplementing the oculist's efforts, and nothing will more conduce to this happy achievement than a quiet explanation of the philosophy of the procedure, and the necessary and important part the patient must take in securing

a successful result. Again, no one, however skillful, can make a satisfactory or ultimately reliable examination, in many cases that come for treatment, at a single sitting; therefore the importance of this time factor should be clearly emphasized in the beginning. We have found that almost all forms of muscular in-co-ordination are affected and exaggerated by the rise and fall of nervous energy in weak and mercurial subjects. Aside from the changes induced in the power of muscles from judicious prism practice, the writer has not infrequently found a variation of from 2° to 4° of heterophoria in the same subject at the same visit, and even greater differences at different examinations.

These discrepancies in my experience have occurred most frequently in exophoria, and in subjects who have suddenly used up their nervous reserves and left the adductors, with their double duty of antagonizing the abductors and constant converging effort at the near point in a state of nervous spasm or tremor, which is affected in turn by every changing mood and passing impression upon the hyperæsthetic sensorium. Onanists and sensualists of sedentary habits, in intellectual pursuits, present these anomalies in a marked degree. These incongruities will also be found as a sequel of la grippe and in subjects who have undergone great financial reverses or the strain and depressing influence of bereavement, in schoolgirls at puberty, and in youth of both sexes soon after their entrance upon arduous school studies.

E. J. BISSELL, M. D., ROCHESTER, N. Y.

I have reviewed my last 400 consecutive eye cases, and find that for various reasons 80 were not tested for heterophoria; two-thirds of the tested cases had heterophoria for distant vision, and nine-tenths in accommodation. One-third had orthophoria for distance, the eyes quickly showing a normal balance, and there was no reason for fussing with the muscles long enough to develop a slight, and, to my mind, false heterophoria.

My cases are tested at $5\frac{1}{2}$ meters, using a 4-candle power electric light back of a circular opening in a card, upon which is a scale graded according to the prism-diopter system of numbering prisms. Before my patient I have a revolving standard with arms, carrying, respectively, a Stevens, Wilson, and a specially arranged Maddox phorometer; so that I can quickly make tests

with each instrument, if I care to do so. My preference is for either the Maddox rod or the double prism in the Wilson phorometer. My experience has been that the rod will, as a rule, indicate more heterophoria than the Stevens instrument. In rare cases I find great discrepancies in the different tests, and also with the same tests at different times. Often there seems to be a spasmodic condition of the muscles present; some of these cases give a history of strabismus in early life; others have marked anisometropia or amblyopia. This condition is most frequently associated with exophoria. I do not test the adduction, abduction, etc., in all cases, but do in a great many. I measure all cases as to their power of convergence.

In looking over the 320 cases tested, I was greatly surprised to find exophoria slightly more frequent than esophoria, having recently made a statement that the reverse was true in my practice. On the first 100 esophoria led by 5 cases, but at the end exophoria was ahead by 12. From this showing I am inclined to think that a larger number of cases might slightly change the proportion. Hyperphoria was present alone, or in combination, in one-tenth of the cases.

I find heterophoria most frequent among close workers of a neurotic tendency. From this I reason that one of the chief causes of heterophoria is deficient or excessive nerve innervation. This influences me in my treatment. Only in five per cent. of the cases do I find emmetropia, or the same percentage of ametropia so slight as not to need correcting. So frequently do I find astigmatism and hyperopia associated with the worst cases of heterophoria that the former seem to act as exciting causes of the latter.

I have no "customary method" of treating heterophoria. I know of no condition affecting the eye requiring treatment upon more broad and diversified lines. I consider the careful correction of ametropia as of prime importance. The results, as far as relieving symptoms, have been satisfactory in a great many patients; yet frequently, when tested by the phorometer, no marked change was present in the equilibrium of the muscles. Hyperphoria is least apt to be relieved by glasses, and most frequently requires an operation. When I operate, I usually do a complete tenotomy with the least possible disturbance to the tissues surrounding the tendon. If a case is tested one hour after

operating, I cannot see any excuse for producing overcorrection. I once markedly overcorrected a case of hyperphoria, but the next day I put in a suture and ultimately secured a good result.

I practice "training" by means of prisms, especially in cases of exophoria, and prescribe but few prisms, except for slight degrees of hyperphoria. Cases in which the wearing of prisms increase the heterophoria will often ultimately require an operation.

Attention to the patient's general health, his habits, and the condition under which he is living and working will often yield more satisfactory results than specific treatment at the hands of a man who is only a cutting, exercising, and prism-prescribing oculist.

R. G. REED, M. D., LOUISVILLE, KY.

Heterophoria of greater or less degree, according to my observation, exists in about 75 per cent. of cases which apply for treatment. If functional disturbances alone are considered, the proportion would be still greater. This includes, however, cases in which the heterophoria does not exceed one-fourth of a degree when measured by a prism, and also all forms of the disturbance. The degree of heterophoria varies greatly in different cases, but in the great majority of cases observed by me, it does not exceed $2\frac{1}{2}^{\circ}$.

Of all the forms of heterophoria met with, *esophoria* seems to be the most frequently seen. This is no doubt due to the excessive use of the interni in convergence.

I do not find heterophoria confined to any particular temperament; but those of sedentary habits, and those whose occupation requires the constant use of the eyes at the near point, suffer more frequently from heterophoria than do those whose occupation requires little or no use of eyes at the near point. I have heard of peculiar mental characteristics being associated with the different forms of heterophoria, but I have never been able to observe any constant relation existing between either mental or physical characteristics and certain forms of heterophoria. On the other hand, I have seen the conformation of the face such that one eye was one-fourth inch higher than the other, and still no heterophoria was present, according to the test with the Maddox rod.

In almost all cases of hyperopia, or compound hyperopic astigmatism, there is associated an *esophoria*, as shown by the test. But this is only functional, and is due to the relation of accommodation to convergence; for, instead of finding the interni too strong, they may be proven to be too weak, as often they are unable to overcome a prism of 10° , base out. This proves conclusively that the heterophoria, while existing in these cases, is due to spasm of certain muscles.

Since confining myself to a systematic and uniform test for heterophoria, as I would in refraction, I have never observed a case of heterophoria without refractive error. In testing for heterophoria, I have found the most convenient and satisfactory test to be the Maddox rod, or a combination of rods, which latter makes a longer and more distinct line of light than the single rod. My practice in testing eyes is to first measure and record the heterophoria, then measure the power of the various muscles by prisms; after which I test the refraction.

In conducting the tests for heterophoria and measurement of strength of muscles, I use an ordinary candle. For the sake of uniformity, I always measure the amount of heterophoria by prisms.

The distance at which tests for heterophoria and refraction are made is twenty feet. I have confined myself almost exclusively to the above as a routine practice.

I believe heterophoria is due, in many cases, solely to spasm of the various external muscles of the eye. This, I think, is clearly shown by the application of the same test to the eye, at different sittings, and often at the same sitting. In one case, I observed a variation of 11° in the same individual at different sittings. Often a heterophoria of from 1° to $1\frac{1}{2}^{\circ}$ may be overlooked, if the test is made in a hasty or careless manner.

The class of cases in which the variation has been most pronounced was of those in which hyperopia existed with esophoria.

The key to the explanation of these phenomena, I believe, is to be found in the study of the nervous relation of accommodation to convergence. Hence I deal with the heterophoria on the hypothesis that before any real malposition of the extrinsic muscles can be proven to exist, all refractive errors must be corrected, and the ciliary muscle made to perform only such duties as are required in emmetropia. The correction of refractive

errors has given very satisfactory results in the great majority of cases of heterophoria; the difficulty entirely disappearing after enough time has elapsed to allow the nervous system to adjust itself to the corrected refraction. This may be very materially hastened by the prism exercises, etc.

If, after correcting the errors of refraction, the heterophoria remains, it is due to structural changes, as in strabismus, or to weakness of the opposing muscle. The distinction between these two conditions may easily be made by the use of prisms, to measure the strength of the various muscles. These measurements should always be made while the patient is wearing the glasses which correct the refractive error.

When the case has been proven to be one in which the muscle causing the difficulty is permanently shortened from any cause, I practice "graduated tenotomy," by the *Stevens* method. This must be done with care, as an overcorrection may result, which may even cause strabismus. The immediate result of almost any operative interference is generally that of relief from the asthenopic symptoms; but should the operation be performed when not indicated, the ultimate effect will be to aggravate these symptoms.

I believe that training by means of prisms is good practice, when the heterophoria is the result of weakened muscles, and I have obtained the best results from the training of the interni. This must be done by seating the patient twenty feet distant from a lighted candle, and having him place before each eye, in alternation, a prism of 2° , base out. This is held before the eye till the images unite, when it is immediately removed, to be replaced by a prism of greater strength, observing regular intervals, until one is reached that cannot be overcome, always being careful not to exhaust the muscles exercised. Experience has taught me that, in any case suffering from asthenopic symptoms, in which the test shows an esophoria, and the primary vision is normal,—i. e., $\frac{2}{3}$, or even $\frac{2}{15}$ —and where there is no manifest error of refraction, or but a slight one, a mydriatic should always be used, and no indication for the use of a mydriatic has given me better results than this.

I have never been able to accept the theory of "latent heterophoria," hence I have never adopted the methods for its development; nor would I consider it advisable to operate for heterophoria developed by this means. I have prescribed prisms for

the neutralizing of existing heterophoria, but never with satisfactory results.

E. W. BEEBE, M. D., MILWAUKEE, WIS.

On tabulating my cases for the months of August, September, and December, I find that 64.4 per cent. of them were without muscular deficiencies, and that 35.6 per cent. were sufferers from heterophoria, the different forms of which were as follows:

Esophoria,	. . . . .	20.8 per cent.
Exophoria,	. . . . .	6.7 "
Hyperphoria,	. . . . .	2 "
Cataphoria,	. . . . .	6 "

Intelligent, neurotic females, particularly those who apply themselves closely to literature or art, as well as those suffering from uterine diseases, are, in my experience, the greatest sufferers from heterophoria.

It is more frequently associated, I believe, with hyperopic astigmatism than with any other form of faulty refraction.

I use various tests for heterophoria, but prefer the simplest methods, the results being frequently more satisfactory than when the more complicated instruments are used.

As a routine practice every case is subjected to muscle tests;—attached to my prisoptometer is a lens carrier in which a Maddox rod, double prism, or a Prince's phorometer can be held in vertical and horizontal positions, and after the refractive error is corrected by the prisoptometer, one or more of these is used and deviations corrected by means of the prism bar, a small gas jet against a black background serving as an object for patient to fixate in making the examinations.

I have used them at twenty, fifteen, and twelve feet, and at the present time am using one but ten feet away, and observe no practical difference in accuracy of results.

I have observed no apparent discrepancies in the different tests applied to an individual during a given examination, when only the simple methods above noted were used.

It is common, however, to observe variations in the amount of heterophoria in the same individual, at different sittings, when the same tests are used, the discrepancies being due largely to the difference in the physical condition of the patient at the time, whether ill, in vigorous health, wearied, etc.

Formerly I frequently prescribed prisms to partially correct deviations, but the practice so often proved unsatisfactory to my patients that I now seldom prescribe them, except it be in marked cases of hyperphoria or cataphoria. If the refractive error is slight and the patient is greatly annoyed by existing heterophoria, best results are obtained by paralyzing the accommodation, and the use of electricity for a period of two or three weeks before fitting lenses—this treatment is frequently sufficient of itself to correct existing heterophoria.

I do not practice graduated tenotomy for the relief of heterophoria.

Occasionally prisms are used for the purpose of exercising weakened muscles, but my success has not been such as to warrant their general use, the objections being that the treatment consumes too much time and the benefit to patients is not commensurate with the trouble and expense.

WM. SIMPSON, M. D., SAN JOSÉ, CALIFORNIA.

I will try to answer by number such of your questions as I can, briefly:

1. About twenty-five per cent.
2. Esophoria.
3. Students. Temperament seems, to me, to cut no figure.
4. No.
5. Astigmatism and hyperopia, though frequent in myopes who are becoming presbyopic.
6. Hyperopic astigmatism and esophoria.
7. No observations.
8. The multiple Maddox rod for distance and Maddox prism test for near seem the simplest and have proved most satisfactory. I have tried methods "too numerous to mention."
9. No.
10. Distance, candle near Maddox prism card.
11. Prisms.
12. Twenty feet down to twelve inches.
13. No.
14. No.
- 15.
16. Yes. From esophoria to slight exophoria.
17. No.

18.

19. The general physical condition of the patient. In some cases sexual excesses, which, I am satisfied, will invariably disturb the balance of the ocular muscles.

20. Correct errors of refraction, and if, in six weeks, the heterophoria still exists, prescribe exercise with prisms or the Kroll stereoscope.

21. Relieves in the majority of cases.

22. No.

23.

24.

25. I have seen so many cases of overcorrection with disastrous results that it has deterred me from operating.

26. Yes. In every case where the training has been persistent there has been relief, but training is not prescribed unless the case seems adapted to it; that is, heterophoria in young persons or in small degree.

27. Yes. If possible, use mydriatics in every case of heterophoria.

28. No.

29. No opinion, as I have had no experience.

30. Yes; in elderly persons only. Where repeated examinations show heterophoria the same in character and degree, the results have been favorable.

Mr. Wm. F. Snow of Stanford University is making some studies of the muscles of the eye under my direction, and I will report the results if they prove of interest.

C. F. BRADEN, M. D., EL PASO, TEX.

Your letter containing list of questions received. Regret very much that my reply must be very incomplete, as the opportunities in this far Western section for gathering information upon the subjects you present for an opinion are very limited. The cases coming to an oculist out here are usually of an inflammatory nature, with occasional ones of refraction.

Those requiring correction of errors of refraction, as a rule, submit to such correction at the hands of the traveling optician or local jeweler, enticed thereto by the alluring "examination free." As a result we get only such cases as are beyond this class of refractionists. And when we do get these cases we are

paid simply for testing for spectacles, consequently our examinations are rarely made for disturbances of muscular equilibrium.

In my practice of nearly three years in this city, I have treated but three cases of heterophoria. One of hyperphoria in a clergyman—the result of a fall in a runaway accident—which made a perfect recovery, after three or four months' treatment, under the administration of arnica and senega. Another, of esophoria, in a physician, was relieved by the application of the faradic current twice a week for a period of one month.

Both of the above cases had diplopia, which entirely disappeared with the treatment. The other case was one of esophoria associated with a hyperopia of plus 0.65 D., and was treated for one month with prism exercise, but, as relief was not material, longer treatment was denied.

In the clergyman a hyperopic astigmatism of plus 0.50 O. U. ax. 90 was found and corrected, no doubt greatly aiding in the recovery. The physician had no error of refraction, but was presbyopic plus 4.50 D. His diplopia only appeared when attempting to read or write, while for distant vision he was troubled with "confusion or blurring of vision."

My tests have been confined to that by the use of prisms, finding the degree of prism necessary to correct the displacement. These tests were made before and after correction of any existing errors of refraction.

I do not measure the power of the various muscles as a routine practice.

My object of fixation is an Argand burner gas jet at a point fifteen feet away from the patient, and I measure the amount of heterophoria with prisms.

Have found that the amount of heterophoria decreased as the treatment proved beneficial. Have never practiced "graduated" or partial tenotomy or tendon advancement. ~~A~~ endeavor to use a mydriatic in all cases when testing for errors of refraction, but find much prejudice against their use. Scopolamine has served me well and does much to overcome the prejudice excited by atropine. Have never prescribed prisms for the purpose of neutralizing existing heterophoria.

My experience leads me to the conclusion that any suggestion of operative procedure for the relief of heterophoria, in this section of the country, would be most emphatically declined.

NYSTAGMUS.

M. RUTH WORRALL, M. D., NEW YORK.

A FEW years ago there applied at the Ophthalmic Hospital Dispensary a boy, poorly nourished, not over-bright mentally, complaining of poor vision. He had a well-marked case of nystagmus and also circumscribed atrophy of the choroid and retina, seemingly the result of an intra-uterine chorio-retinitis. He was under treatment for a time,—without material benefit, as he did not attend regularly,—and then disappeared.

About two years ago an Americanized Irishwoman brought her son to Dr. Macbride at the clinic, as her daughter had been cured of blepharospasm. The son had what the mother called “dancing eyes.” He was of stocky build, well-nourished, and although not particularly bright-looking, was not stupid by any means. The eyes presented a well-marked horizontal nystagmus, the rapidity of the oscillations being greatly increased by near fixation, or if he thought anyone was looking at his eyes. The distance vision was very poor indeed and not helped to any practical extent by glasses, although they helped a little.

It was impossible at first to view the fundus, but after instilling a mydriatic the details became visible, revealing a number of atrophic spots, one almost the size of the disk—probably the result of fetal chorio-retinitis (?).

He was given agar. three times a day at first, later once a day; the oscillations seemed to diminish in frequency until, after a year and a half, on first looking at the boy no movement was apparent, but as soon as he saw you looking or

on attempting near vision, the eyeballs would move rapidly. Then, for a time, there seemed to be neither improvement nor retrogression, but simply a standstill; so he was put upon nux and he continued to improve until at the beginning of the present school year he commenced studying hard, and the eyes increased the number of movements. Agaricus, three times a day, was given with orders to report in a week, at which time it was found the movements had again lessened; medicine repeated.

About November 1 he came with a history of difficulty in seeing objects at night: he had stumbled over a boy's leg because he had not seen it in the dim light. It was found at this time that he was studying his lessons at night by gaslight. He was told to have someone read his lessons to him and never to attempt to read at night except in good light: and not even then if he could help it. It was also noticed at this time he had a strabismus; pulsatilla was the remedy given.

He has not since complained of night blindness, and oscillations are again lessening.

Dr. O'Connor went carefully over the case, and although not finding much nervous trouble present, the only indication being the paralytic squint, yet fears trouble in involvement of other nerves; believing the paralysis to be of cerebral origin.

The boy is still under treatment, but is now taking phos.

Nystagmus was also seen in another case in the same clinic, but the patient, a grown woman, had a very peculiar pigmentary degeneration of the retina, but coming from away back in the country she was unable to continue under treatment, and so passed from view.

Nystagmus, while not a very common condition, yet is by no means rare, as a search among the various journals will reveal.

The term literally means a nodding, but is now generally understood as signifying regular, rhythmical movements of the eyeball, which movements do not interfere with conjugate action of the eyes.

When the motion of the eyeballs is from side to side it is called horizontal nystagmus and is the form most commonly seen. There is a variety where the eyeballs move up and down, called vertical; the rotary where the motion is "rolling around sagittal suture" (Fuchs). The mixed, a combination of the rotatory and vertical, is quite common, while Panas says the oblique nystagmus, the movements taking the middle between the vertical and horizontal, is a pure rarity.

The number of oscillations per minute vary from 60 to 200, they varying in inverse proportion to their range; the wider the sweep the fewer in number in a given time.

These jerking movements are generally found in both eyes, but there are at least nineteen or twenty exceptions to this rule.

Nystagmus, instead of being always a disease in itself, seems to be often only a finger pointing to trouble, perhaps near at hand, perhaps far from the eye; as a consequence, it is many and various in its forms, comes from differing causes, and is found in many diseases; yet may appear to be the one and only lesion in an apparently otherwise healthy organism.

Many text-books say nystagmus is an involuntary movement of the eyes. Frequently one hears repeated, "one swallow does not make a summer." I wonder if five do, for I have been able to find just five cases reported of voluntary nystagmus. One case, now a grown man, when a boy of eight, discovered he could apparently make the candle dance; he cultivated the accomplishment, so that now he can move the eyes with equal readiness from side to side, up and down, or cause the oblique muscles to act in rotation; these movements, it is said, are so rapid they may be styled flashing.

One case is mentioned by Noyes in his text-book of a man who, after being confined some time in a dark room by some eye trouble, on recovery was able to cause his eyeballs to oscillate.

Donders says nystagmus can be produced by rapid rota-

tion of the body, also by the application of the galvanic current through the back of the head.

It is authoritatively stated that in a perfectly blind eye nystagmus never occurs, yet Syms tells of a peculiar variety seen only in blind eyes, in which the balls are moved with one sweep over to one side and return in a series of short jerks, only to be swept back again and return as before.

The disturbance of movement in the ordinary amblyopia of strabismus consists of twitching or jerking movements to one side and is preferably termed nystagmus-like twitching.

Nystagmus may be divided into the following: hereditary, congenital, acquired, symptomatic, secondary, and sympathetic.

In the hereditary form, Le Grand de Saulle is quoted as saying "we wish to assert that the nystagmus is one of the signs of a neurotic inheritance, and it is met with nearly always in those whose ancestors showed some form of mental aberration . . . and is nearly always associated with some physical abnormality." Decidedly in keeping with the foregoing Adeoward gives the most grewsome family history in a case of hereditary nystagmus: On the maternal side the grandfather, who was alcoholic and a hopelessly bad character, married his first cousin, who was very passionate and subject to migraine—two first cousins were epileptics; the patient's mother and sisters were neurasthenic; a cousin was hydrocephalic on the father's side; the great-grandmother was insane and alcoholic; the grandfather was insane and committed suicide; an uncle was alcoholic; father alcoholic and brutal; one brother insane; one had died by his own hand, and the third was eccentric; a number of the other members of the family also had nystagmus, but in those examined the fundus was seemingly healthy in all but two; one having a suspicion, and the other a fully developed partial atrophy of the optic papillæ.

In direct contrast to the above is the nystagmus descending through four generations in which there is no history of syphilis, hereditary ataxia, disseminated sclero-

sis, consanguinity, albinism, fits, chorea, or ophthalmia neonatorum—movements were not associated with dentition, nor was there protracted instrumental delivery; the nystagmus was accompanied with head movements, motion being noticed at or soon after birth; no other congenital anomalies could be discovered either in the affected or unaffected members of the family who have been examined; all are well developed, both mentally and physically. An interesting feature is the fact that the condition seems to have been transmitted through the daughters to the sons only, with but one or two exceptions; also the fact of its being latent in the second generation to crop out in the third and fourth.

In the congenital form is included nystagmus caused by congenital faults—as coloboma of the choroid and retina; polar, lamellar, or zonular cataracts; intra-uterine chorio-retinitis, retinitis pigmentosa, etc. In fact, it is anything supposedly causing an amblyopia interfering with the acquirement of binocular fixation.

Nystagmus is often the result of a disease acquired at or soon after birth, viz., ophthalmia neonatorum, and as the sight becomes poor before the time of binocular fixation, it is generally classed as a congenital nystagmus.

Under the acquired form, the chief and most common variety is that known as miner's nystagmus. Jefferson objects to the term nystagmus and would substitute the term miner's neurosis, as he believes it due to some central change in the nervous apparatus. The following is his picture of a typical case.

“Man, æt. 25–35. May present no other pathognomonic symptom, or may be anæmic, may present a peculiar facies, a certain look of distress and drawn condition of the features, amounting to a mild condition of risus sardonicus. It is rare except in the most aggravated cases to find a constant nystagmus, it has to be sought for and even provoked; the patient complains of seeing very badly in the pit, especially after being down a short while; he stumbles and kicks against persons and things he was formerly able

to avoid without difficulty, lights move rapidly or dance before his eyes; sometimes the motions are horizontal, sometimes vertical, or they are oblique or circular—this dancing usually attended with giddiness, but no inclination to vomit. Continued movements, as in walking and working, increase the evil, but if the patient stands still the symptoms are decreased. Most patients can temporarily control symptoms by various maneuvers they call steadying themselves.

“The subject is invariably a hewer, and the constrained position and severe muscular exertion to which he is liable greatly increase the symptoms and render work well-nigh impossible. But it is not only in the mine that these suffer, on coming out of the pit most of the patients complain of seeing badly; some indeed have to be led home. After a few hours’ sleep the retina seems to have regained to a certain extent its functional balance. When there is medium light patient sees best. As twilight approaches night blindness comes on, and at night they are as helpless as they were in the brightest sunlight; the same with artificial light, it dazzles and produces nystagmus. Sometimes there is paralysis of accommodation, which, if patient be hyperopic, is particularly troublesome.

“Patient may complain of lights dancing, yet there be no apparent movement of the eyes—but on placing hand on head, there will be felt a vibratory tremulousness, sometimes extending to the muscles of the neck and shoulder.”

In exaggerated cases there was general malaise, some congestion of the eyes, much blinking and shunning of the light, objects dancing, inability to see after dark, considerable frontal headache. When sitting quietly the eyes are steady or become so by a little maneuvering, but the least movement to rise or turn or even mental agitation or nervousness will cause nystagmus. Sudden entry of a stranger, certain positions and actions exert an exaggerated effect upon movements, and if persisted in nystagmus becomes very violent and muscles of the face participate in the movements, vision goes, and inco-ordinate move-

ments like chorea take place in extremities with palpitations. Ultimately the patient falls complaining of pain in the spine and a peculiar fluttering in the epigastrium, which is generally present, even if nystagmus is less severe. Complete failure of accommodation, and patient highly hyperopic; glasses alleviated many of the symptoms.

But it is not always that these marked nervous symptoms are found; the disease varying in severity. Opinion is divided as to miner's nystagmus being a true occupation neurosis, that is, due to overfatigue of muscles used in pursuing certain avocations—but we have cases of this kind—one a seamstress, another, plankcutter, and a compositor.

An infant who turned his eyes to look at toys which were held above his head developed a nystagmus, as did also a man (*Vanity, thy name is not always woman*) who used to stand before the mirror from a half to an hour each day, pulling gray hairs out of his scalp.

It is in the symptomatic form we as physicians are most interested; for nystagmus is beginning to be looked upon as a valuable diagnostic point, often appearing when other symptoms are vague and shadowy.

In epilepsy, both in the grave and petit mal, it occurs indeed so comparatively often that a Frenchman has tried to show a connection between the epilepsy and the nystagmus in locating the unstable brain substance.

Nystagmus is said to be continuous in the petit mal, and only appearing at the time of the cell explosion in the grave forms.

There have been reported cases which resembled the minor epilepsy—but were not, but were due to continuous and straining brain work, in two cases of which nystagmus was a marked symptom.

In the hysteroid state Hogge has been able to produce nystagmus by bringing a vibrating tuning fork to the patient's ear, when the eyes would move in time with the fork. It is said he could also produce these movements by other sensory impressions.

In Friedrich's disease it is also found, but here seems to

be only a logical sequence ; the advancing involvement of muscles.

There is a rare and fatal disease of childhood, nineteen or twenty cases only having been reported, which is as yet unnamed, where the child, born healthy and of healthy parents, after a few months shows signs of arrested development, and then of degeneration; nystagmus occurs and there are early blindness and characteristic retinal changes, similar to those of central artery embolism.

Nystagmus has also been found in the peculiar head-nodding of children.

It is very rare indeed in locomotor ataxia, but has been known to occur ; these eye movements may occur after severe and long continued mental trouble, associated in the poor with great privation and absolute want of food ; in alcoholics, also in paretic dementia.

There is not infrequently observed a slight nystagmic movement when feeble patients, without any well-defined disease of the nervous system, are examined with the ophthalmoscope.

Nystagmus is a frequent symptom in ocular paralysis when the eye is moved in the direction of the weakened muscle.

Lesions of subventricular origin, in the medulla oblongata, in the gray matter of the floor of the fourth ventricle, basilar meningitis, cerebral hemorrhage, have all been known to cause nystagmus.

In a case of cerebral tumor treated by Gowers, not only were there rhythmic movements of the eyes but also of the muscles of the throat ; the superior constrictors of the pharynx were in a state of constant rhythmic movement in a horizontal direction, as if the posterior pharyngeal curtain were being rapidly drawn together ; the laryngeal muscles were similarly affected.

Of the secondary form there have been cases following typhoid fever, supposedly due to the results of an acute meningitis during the fever ; it is sometimes found in acute rheumatism, especially if valvular disease of the heart be

present; but in a case reported by Hughlings Jackson, the secondary aspect can be seen clearly. The woman had been subject to a discharge from the ears since childhood, but was now attacked with vertigo and "bilious headache" (auditory vertigo); pressure on the tragus or on the pus (canal was entirely occluded by pus) caused a lateral nystagmus, which was greatest on looking above, lessened on looking straight ahead, and least of all when looking down, although in that direction the motion was lateral combined with the rotatory. As the discharge lessened under treatment, the movements were less easily excited, until, when the pus was nearly all gone, the doctor could not produce the nystagmus, although the patient could by putting the finger far in the ear. She said "the nerve had moved farther in."

It has been said to accompany Menière's disease, and has been produced in sensitive patients by the injection of fluids in the ear and in an attempt to remove a polypus from the ear.

Dr. T. R. Pooley had a patient where nystagmus developed during an illness resulting presumably from trying to give up the opium habit.

Nystagmus has developed during a scleritis, but with the subsidence of the disease the motions ceased also.

There is a form which might be called sympathetic—one case of a young man, who in childhood, through perforating ulcer, lost the sight of one eye, which became atrophied. Through someone's advice he wore a glass eye over the stump for two years, notwithstanding the irritation set up in the other eye, until at last, when the good eye was almost blind, he applied to an oculist, who not only found the usual signs of sympathetic ophthalmia but also a nystagmus.

In a case reported of rudimentary globe in one socket, the good eye was said to be nystagmic; but no mention was made of other conditions except that the patient was very stupid.

Several cases have been reported in which patients having

impaired vision in one eye, on fixing with that eye, the good eye being screened, nystagmus occurred in both eyes; while, if fixing with the good eye or with both, nystagmus did not appear.

Symptoms may vary, depending on the cause, age of acquirement, and the accompanying disease.

In young children or in adults, in whom the movements had their origin in childhood, there is absolutely no trouble from the movements. Objects do not seem to change their positions, hence there is no giddiness. Such is the effect of education, and the only inconvenience suffered is due to amblyopia, but it is generally conceded that the amblyopia is a cause rather than effect of the motion, although, if vision is good, excursions are small and movements are rapid; oftentimes refractive troubles of various degree and kind are found—night blindness (hemeralopia) or day blindness (nyctalopia): color blindness; sometimes strabismus. It has been seen accompanied by hippus (rhythmical movement of the pupils) also with rhythmic movement of the lids. In the case of a miner, there were clonic spasms of the upper eyelids and upper extremities.

But in that acquired after binocular fixation is learned, there exists quite a different picture: objects appear to dance; a bright point seems a line, an ellipse, or a circle, causing vertigo; no object is seen distinctly; sometimes strabismus is present, adding diplopia to the list of pleasant sights, and as in such cases the nystagmus is generally the herald of some very serious trouble, symptoms of the other disease are present.

Nystagmus may come suddenly, as in the case of a man who, after having been troubled with slight diplopia for fifty years, awoke one morning to see fixed objects move and rock laterally—and it was found he had a sudden and lasting nystagmus, most marked on looking to the left and aggravated by active movement, especially coming downstairs and turning to the right: there was in this case a mitral systolic murmur.

There are generally some one or more positions where the

nystagmus is almost if not quite gone, and conversely there are some one or more directions of the gaze where the movements are more noticeable; especially are they increased if patient believes he is being observed; often an effort of convergence will start up or aggravate the trouble; a sudden noise, the entrance of a stranger into the room, being told to keep the eyes still, or, in cases accompanied by head movements, forcible stopping of the head. In miner's nystagmus bending the head and looking up will serve to start the motion, even if the eyes have been perfectly quiet; dim light will cause an aggravation.

In order to check the movements and consequent giddiness, the patients perform differing maneuvers. In one case in which there were also spells of fluttering down the spine, violent palpitations of the heart as well as quick nystagmus, strange to say, several deep breaths generally stopped the attack for the time being. Many miners, by suddenly straightening themselves, can for the moment quiet the eyes. Small doses of alcohol will stop the movements, but large doses only increase its severity.

In those cases where the nystagmus is virtually present all the time, in order to see more clearly, fine work is brought near to the eyes and they are rendered myopic (some question whether myopia is an effect or a cause); also print is held in certain positions—perhaps slanting; sometimes perpendicular—allowing eyes to travel up and down instead of from side to side. Sometimes patient turns head far to one side and eyes also in that direction, cutting off circles of diffusion by means of the eyelids and nose; also, the nervous energy given to one muscle of each eye being greatly increased, in order to turn eyes far over to one side, that muscle exerts itself over all others and steadies the eye, greatly reducing, if not annihilating the nystagmus temporarily. Oftentimes the head is moved in opposite direction to the eyes, but not always at the same rate.

The causes of nystagmus are many and widely different: blows on side of the head, apoplexy, instrumental delivery

convulsions, falls on the head, maternal influences preceding birth, have all been followed by nystagmus. Neurotic ancestors are supposed to be the cause of the hereditary form, while a very aggravated case was found in a boy of ten who had insular sclerosis due to inherited syphilis. In a family of nine, children of alcoholic father, four had nystagmus, accompanied with either simple or compound hyperopia.

In miner's nystagmus at first it was supposed to be due to the deleterious effects of fire damp, but that belief did not seem to be founded on fact; then it was thought to be due to simple muscle fatigue; it being affirmed that the trouble was only found in hewers who half recline upon one side while looking obliquely upward; others refer the trouble to the insufficient lighting of the mines, citing as a proof, the apparent increase in the number of cases since the safety lamps were introduced, which are said to give rise to a disagreeable glass-glare and to be inferior in illumination to a candle.

In some mines the belief is current that the nystagmus is a symptom of a disease due to cold, for the miners often work in water above their waists, the trouble in these mines not being confined to the hewers; hence it is believed to be due to spinal trouble, as cold and wet are the best known exciting causes of disease of the spinal cord.

Any condition lowering general vitality, or any position or occupation producing extra bodily or nervous fatigue, greatly aids the onset of nystagmus; hence in miners recovering from severe sickness, especially if troubled with corneal opacities or refractive troubles, nystagmus is most frequently found.

It is said nystagmus is caused by the continuous effort to fix under conditions which render continuous fixation peculiarly difficult; thus, when the cornea is covered with opacities, the dazzling, diffusion, and inability to distinctly view objects all combine to render fixation difficult; while in albinos there is too much light admitted to the eye, which gives rise to actual pain, thus also rendering fixation difficult.

In consequence of the existing defects of vision, the light-perceiving parts of the cerebrum receive only subnormal stimuli, which leads to insufficient excitation of the centers which regulate the movements of the eyes, which excitations of the centers lead to changes there whose functional expression is involuntary tremor-like movements.

Sometimes a case of nystagmus will be seen either with only a very slight nebula, hardly discernible, or else no lesion whatever of either media or fundus. In those cases it is supposed a severe trouble was present soon after birth—ophthalmia neonatorum, or retinal hemorrhage, etc., which, persisting for a length of time, gradually cleared up; but not until the eyes had learned the habit of movements, which habit continued.

In nystagmus combined with head-nodding, in children, some believe it to be due to spinal or spinal-system chorea.

Dr. Hadden thinks the trouble comes because the children are intelligent and precocious and acquire fixation too early, hence the irregular or rather purposeless movements of the eyes; others say the oscillations (hereditary) with or without movements of the head, seem most allied to hereditary tremor of the limbs and head.

In the occupation neuroses, including that of miners nystagmus, after first attributing the nystagmus to be a myopathic condition, pure and simple, many have been the theories advanced to show in some way the connection between the position in working and the disease.

It is said that in the slightest cases, the movements will appear when the patient turns the eyes up as far as possible; in the severest form, movements will lessen, if not stop entirely, when patient turns the eye down as far as possible. One author claims that as the ganglionic system of nerves governs and restores the normal functions and positions of organs when disturbed and tends to maintain the equilibrium of health, so the ophthalmic ganglion has some influence over the movements of the eye, tending to restore it to its natural vertical position when displaced, really being the brain of the eye, governing and presiding

over its movements, originating motion within certain limits quite involuntarily and independently of the cerebrum—hence, when eye is inclined to either side, the ophthalmic ganglion is constantly trying through the muscles to roll the eye round to its natural vertical position, but the dim light and upward gaze of the eye causing fatigue in the weakest muscles, the ganglion becomes over-tried and thus we have nystagmus.

Others again blame the position of the head; while the neck is so sharply bent, the medulla is in a condition of venous engorgement, consequent upon the pressure on the large blood vessels of the neck, causing a cell discharge from unstable gray matter, rendering visual co-ordination impossible.

In the nystagmus accompanied with movements of the throat and neck it is seen that the root nuclei of the spinal accessory, and of the upper spinal nerves supplying the muscles of the throat and neck, stand in a very close relation to those moving the eye. Some resemblance of the attacks to epilepsy suggests instability of the motor centers above the nuclei in the spinal cord and fourth ventricle, presumably in the cerebral cortex.

In the nameless fatal and fortunately rare disease of childhood, Koller believes the lesion is probably a degenerative process in the cortex of the brain (also in retina), although other authorities aver that it is an arrest of development.

“In conjugate palsy of ocular muscles and lateral movements of the eyes caused by disease on one side of the pons,” Gowers supposes the lateral movements were excited by the sixth nucleus on that side acting through its own nerve on the external rectus and through the posterior longitudinal fibers (cells and fibers of the opposite third nerve and nucleus) in the opposite internal rectus. He speaks of three classes of palsy:

1. Paralysis of the sixth nerve only from disease of the fibers within the pons. External rectus alone affected.
2. Diseases of the nucleus of the sixth nerve. External rectus and internal rectus of the opposite side affected.

3. Diseases above the sixth nucleus.

If the eyes were moved to the opposite side they could be brought back as far as the middle line but not further; thus the affected muscles could bring the eyes back from the position produced by the action of their antagonists, although they could not effect a primary movement; probably the return was due to the influence of the centers of the opposite side. Thus in diseases of the right side of the pons in which the eyes could not move to the right, if they moved to the left the centers on the left side excited the corresponding centers on the right side to bring the eyes back to the middle line; to move them further the interrupted right path was necessary; it is perhaps a special instance of the associated action of the opponent muscles, continuing longer in the centers for opponents than in those for the primary movement; thus nystagmus may be due to intermissions of the primary contractions; given intermittent contraction and return movement, the oscillations necessarily followed.

Dr. Hughlings Jackson holds that nystagmus and tremor signify paralysis, believing that notwithstanding the complete excursions of the globe there was loss of some few ocular movements—sometimes with overdevelopment of other movements of the same muscle and temporary exhaustion of some cells, the lowest motor centers of certain ocular movements; for example, after looking out of the window in a rapidly moving train, if one looks suddenly at the seat in front the seat will seem to move. He believes that if one followed as an occupation looking out of a car window, in time one might develop “railway nystagmus.” (Disease as yet unknown.)

Bramwell thinks that, in a case of miner's nystagmus seen by him, the cervical sympathetic was at fault, from these symptoms:

a. Variable state of the pupils.

b. Profuse sweating, sometimes unilateral.

c. Condition of the patient during an attack; notably prominence of the eyeballs, dilatation of the pupils, and coldness of the extremities.

d. Marked benefit from amyl nitrite.

Max Knies says the necessary fibrous connection between the retina and cerebral cortex, between the fovea centralis and the perceptive center, only develops after birth, and gradually becomes medullated and thus capable of function. If disturbed for any reason, there is constantly noticed a peculiar disturbance of vision, viz., nystagmus, which may be defined as imperfect cortical innervation of the voluntary muscles of the eye (a peculiar form of paralysis agitans); its real cause may be peripheral, central, or both.

In true nystagmus there is constant uniform disorder of innervation, while in nystagmic twitching there is unequal and changing disturbance, as in cortical exhaustion after unusual or forced movements. The wagging of the head found in miners is due to cortical motor exhaustion of the centers for the muscles of the neck.

In multiple sclerosis there are probably sclerotic foci in the vicinity of the nuclei, but the nerve fibers are not divided but merely deprived of the medullary layer, hence conduction is not entirely abolished, but interfered with; no complete cortical paralysis, but paralysis agitans—it is often a symptom, a *beginning* degeneration.

In various *post-mortems* on patients who had nystagmus at the time of death, the site of the lesion has varied. It has been found in corpus striatum, corpora restiformia, corpora quadrigemina, optic thalamus, fourth ventricle, cerebellum, pachymeningitis, wounds of the brain and medulla, tubercle (meningeal).

Prognosis varies as much as the subject—roughly dividing the cases into idiopathic and symptomatic; the former including those in which nystagmus had begun in early childhood, not as result of brain disease but rather of those which come from inability of binocular fixation. But *all* children do not acquire nystagmus, even when having great trouble in fundus and media; the nystagmus generally lasts through life, which is not always short in duration; neither is the trouble always a bar to success; there are said to be two nystagmic albinos, one a music teacher and composer and the other a practicing chemist.

In a number of cases, collected by Dr. Hadden, where the nystagmus was accompanied by head-shaking, the movements stopped after a few months' treatment; only one of the number dying, death being caused by another disease.

Norrie of Copenhagen speaks of a number of cases which recovered spontaneously, in one which he instilled atropine. As the effect of the mydriatic wore off, nystagmus lessened and at last disappeared.

It is said that when nystagmus is caused by a monocular condition, as cataract in one eye, squint will occur and the nystagmus stop.

In the symptomatic form the prognosis is far graver; in the occupation nystagmus, although not exactly dangerous to life, the patient is often debarred from his work, always for a time and sometimes he can never resume his former employment; but, in the other forms, nystagmus is simply one symptom of the onslaught of an insidious foe, who will after a greater or less time invade and occupy the citadel, and death result.

Fuchs says treatment is useless. It is needless to say, remove cause, *if possible*; correct refractive errors. In former times tenotomy was much advocated whether there was strabismus or not. In a case of nystagmus due to a blow, tenotomy apparently cured; in many cases it did no good whatever; in fact, in some cases where there was no strabismus it made trouble, for diplopia was added to other evils.

In that nystagmus accompanied with head-nodding Hadden gave general tonic treatment. Strychnia has been tried with palliating effect; in the cases in epileptic seizures bromide of potassium, in enormous doses, had a quieting effect on the movements.

Panas recommends blue glasses; in certain cases the galvanic current.

In a case treated by Dr. Macbride at the clinic, where improvement was not only found by the doctor but was noticed by friends of the patient, agaricus

has been the main remedy used throughout the treatment, while, as indications pointed, nux, pulsatilla, and phosphorus have been used. Also proper use and not abuse of the eyes has been insisted upon.

Northrop speaks of remedies especially suited to this condition as being agar., bell., cup. met., hyos., ign., jab., physostigma, nux v., puls., and sulph.

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A CASE OF CUTANEOUS AND OCULAR TUBERCULOSIS WITHOUT VISCERAL MANIFESTATION.*

BY DR. HENRI COPPEZ, BRUSSELS.

SINCE the discovery of Koch's bacillus, a number of authors have made a study of primary tuberculosis of the uveal tract.

Haab † has given an excellent clinical description of this affection and little has been added to his description. Eperon, ‡ Panas, § Lagrange || and some others admit that there are two principal forms of the disease: "One sub-acute, peculiar to infancy, leading rapidly to disorganization of the eye and necessitating immediate enucleation; the other coming on at a little more advanced age, proceeding more slowly and susceptible of cure, either spontaneously or as the result of a partial operation."

But if the clinical varieties of the disease are thus fixed, it is not the same regarding the origin and treatment. Is ocular tuberculosis primary; that is to say, without previous localization in the economy?

Lagrange says in relation to this subject: "While it may not be possible to speak with absolute positiveness in a matter of this kind, it is certain that the second variety is very often primary; that it attacks subjects, almost always

* *Rev. Gén. d'Ophthalmol.*, November, 1896.

† Haab, *Arch. f. Opht.* XXV. 4, 1879.

‡ Eperon, "Étude clinique, sur la tuberculose primitive du tractus uveal," *Arch. Opht.* p. 485, 1883.

§ Panas, "Traité des maladies des yeux," tome i. p. 384.

|| Lagrange, "Une observation de tuberculose primitive, etc." *Arch. d'Opht.* p. 170, 1895.

infants or young persons, who present no manifestation of tuberculosis.

"Meanwhile Professor Panas remarks very judiciously that one is never sure that an individual attacked by tuberculosis of the iris is exempt from latent visceral lesions."

Eperon, in his clinical study of primary tuberculosis of the uveal tract, states that, in almost all of the patients attacked with this affection, there already exists a ganglionic tuberculosis, more or less pronounced, which is probably the primary source of infection. But, in our opinion, it is questionable if, in these conditions, the uveal tuberculosis should still be considered as primary.

Koehler, cited by Valude* finds tuberculosis at all ages, but especially under twenty. He also observes that it is a little more often secondary, consecutive to a persistent general infection, appearing, in a word, only in tuberculous patients.

De Wecker† said recently in the *Congrès d'Ophthalmologie*: "One is in no way authorized to consider as primary an intra-ocular tuberculosis developing in a closed cavity, as long as everything seems to show that the infection has proceeded from a distant point in the organism."

What a difference of opinion is seen among these authors! What a divergence between Lagrange, who believes tuberculosis to be almost always primary, and De Wecker, who considers the same affection to be almost always secondary!

Baumgarten, who has made this matter his favorite subject for study, admits that there would be generalization of the tuberculosis only after previous local lesion at the point of inoculation; if then we reserve the name of primary tuberculosis, or primitive point, for the local lesion of inoculation, it seems difficult to admit a primary tuberculosis of the uveal tract. How can this part of the eye be attacked and no other part implicated? The uveal tract is protected against external influences by the sclero-corneal *cuirasse*, acting as an impenetrable epithelial barrier to Koch's

* Valude et Truc, "Pathologie générale," vol. i. p. 536.

† L. De Wecker, "Le pronostic de la tuberculose oculaire," *Clinique Ophthalmologique*, May, 1896.

bacillus. The conjunctival sac is a very bad medium for it. "The chemical action of the tears," says Truc, "or that of other microbes, destroys the tubercular bacillus." Inoculation of the conjunctiva is occurring constantly. Moreover, as far as our knowledge goes, in tubercular conjunctivitis, which is itself rare, no specific iritic complications have ever been noted.

On the contrary, if we admit a pre-existing tuberculous point in the organism,—pulmonary, cutaneous, or otherwise,—the blood current or lymphatics could bring the bacilli as far as the anterior uveal tract, where, on account of the slow current and the richness of the vascular system, these bacilli find a favorable ground for their fixation and development. But very often tuberculous uveitis, like metastatic choroiditis, may be cryptogenetic; it may be impossible to find the primary lesion.

Nevertheless, Baumgarten's law, as announced above, would seem susceptible of exceptions. As one example among others which exist, the bacilli that are found in animals often penetrate into the organism without producing intestinal lesions.

Roger* does not seem to agree at all with the ideas of Baumgarten: "There is no constant and absolute relation," says he, "between the path by which the bacillus is introduced and its principal point of localization, or *even its primary localization*. Very often, in the case of tuberculous peritonitis, for example, there is found no lesion of the intestine that could serve as a gate of entrance; moreover, the gate of entrance may not be even suspected."

Thus, here are two opinions diametrically opposed. Baumgarten would always have an initial lesion or point of inoculation; Roger finds no relation between the gate of entrance and the primary localization. With Baumgarten, a primary uveal tuberculosis would be inadmissible; with Roger, on the contrary, it is quite possible; the bacilli having been surreptitiously introduced into some part of the organism, and manifesting their presence for the first time after their penetration into the ciliary body or iris.

* "Traité de médecine," Charcot-Bouchard, vol. i. article, "Tuberculose."

If we glance at the ætiology of some of the other manifestations of tuberculosis,—for example, tubercular arthritis,—we will see that here also there appears much confusion. “It is an undoubted fact,” says Koenig,* “that tubercular arthritis is often observed in individuals who previously had been in perfect health and presented no suspicion of scrofula or tuberculosis. It is not rare to see the articular affection develop consecutive to a relatively slight traumatism, a contusion involving the coxo-femoral articulation or the trochanter. In our opinion the individuals in these cases are in the *power* of tuberculosis, and the development of tuberculous arthritis following a contusion of the articulation should be explained in the same way as the appearance of a gumma in a bone subjected to contusion in a syphilitic subject.”

This is the well-known theory of *locus minoris resistentiæ*, but it does not exactly find its application in the cases under consideration. It is well known how rarely the iris is implicated in children, except traumatic iritis and that which accompanies specific parenchymatous keratitis. Such an ulcerative affection of the cornea which, in the adult, is inevitably complicated with grave troubles of the iris, does not present anything of this kind in the infant. It is this condition that makes allowable the use of pilocarpine, while the same instillations in the same lesions of the cornea, at a more advanced age, may be followed by serious results and set up an iritis, which in the infant would not be thought of. We would gain but little then by explaining the origin of primary uveal tuberculosis by considering the bacilli carried in the blood or lymph current to fix themselves in the iris on account of the lack of resistance of this membrane. There are a hundred other places where tuberculosis ought to show itself rather than in the iris.

In order to make clear this question of the ætiology of tuberculous uveitis which is so complex and delicate, let us glance also at the history of tubercular meningitis.

There are many ties uniting the uveal membrane with the pia mater. Embryologically, both are derived from the

* “Traité de pathologie chirurgicale,” vol. iii. p. 428.

mesoblast. Anatomically, as Testut has remarked, the choroid has a very slender structure which greatly resembles the cerebral pia mater. This eminent anatomist even considers the choroid to be a prolongation of the pia mater. We know, in fact, that the pial sheath of the brain is directly continuous with the pial sheath of the optic nerve, and has not Schwalbe demonstrated that the more intimate fibers of the latter insinuate themselves through the cribriform plate and penetrate to the uveal membrane? Physiologically, if the one is the nutrient tunic of the eye the other passes justly as the nutrient tunic of the nerve centers. Both, then, are deeply located, protected against external influences by a fibrous envelope of great strength; the sclerotic for one, the dura mater for the other.

The wife of a farmer from Brabant, aged seventeen, was wounded in the right hand. The sore, badly taken care of, became infected and degenerated into a tuberculous ulcer. Whence came the infection? Among the animals confided to the care of the young woman there was a cow suffering from tubercular mammitis. It was from the teat of this cow that our patient became infected; the wound extended from the palmar surface of the ring finger to the junction of the first and second phalanges. Inoculation was thus rendered easy.

The young woman had always enjoyed excellent health, no personal or hereditary history. Her parents, brothers, and sisters are all well. There seemed to be no particular predisposition. Meanwhile the infection was making rapid progress. On the one side, remaining exclusively limited to the skin and subcutaneous cellular tissue, it presented exactly the appearance of *varice lymphatique* described by ancient authors, and reached the hand, the wrist, the arm, and then the entire body; on the other side it propagated itself by means of the circulation as far as the ocular globe, where a tubercular iritis declared itself only a very short time after the primary accident.

Nothing is more curious than to watch the progressive march of this affection, threatening to invade, one after the other, every part of the body. At certain places, always in the neighborhood of a pre-existing point, the cellular tissue became puffy and the skin cold. There was some pain due to pressure, never spontaneous. The heat was not long in disappearing, and there then

appeared a fluctuating tumor with cutaneous reaction ; the skin soon became livid, bluish, and ulcerated ; giving exit to a thin pus, which later changed to a yellowish serum.

After some weeks the fistula ceased to flow and there finally remained a violet cicatrix, indurated and deeply adherent. These tubercular nodules, true cold abscesses, frequently affected close relations with the articulations (especially the elbow) or with the ganglions. But in general these abscesses were simply confined to the skin, and it seemed to us proper to consider their relations with the articular and ganglionic systems as purely fortuitous.

In fine, there was presented to us a gummous cutaneous tuberculosis, having the aspect of a true tubercular lymphangitis, a special form, which can, as we know, take on a considerable development and bring in its train the gravest visceral complications.

In order to give a more precise idea of the propagation of these purulent foci, the following were the lesions presented by the patient in July, 1894, six months after the primary accident : two foci on the right hand, four at the elbow, two on the scapula, several—the size of a hazel nut—on the right cheek, two on the left palm, three on the left forearm, one on the nape of the neck, ten on the buttocks and thighs, four on the left leg, three on the sole of the foot and on the left great toe. In all about thirty-five subcutaneous foci.

The first of these were left to themselves ; the later ones were curetted, thermo-cauterized, and packed with iodoform. Other foci developed still later, and we may consider the total number as being not less than sixty or seventy.

The general state of the system was much shocked in the beginning, as evidenced by malaise, anorexia, and amenorrhœa. She, however, rebounded satisfactorily, and it was never possible to determine a visceral tuberculosis. Percussion and auscultation never gave any reason for suspicion. The affection began toward the end of the year 1893. The patient was entered in the hospital in March, 1894, on account of tubercular iritis. Toward the end of the same year the cutaneous gummata became more and more rare. In the meanwhile the young woman had returned to her home, and after a year no new abscesses were developed. The disease seemed to have terminated its evolution.

We placed the patient upon tonic treatment ; she took succes-

sively the *elixir iodotannique de Naline*, pills of arseniate of iron, cod liver oil with syrup of iodide of iron. Such was the general march of the cutaneous affection, it is seen, that after having had a period of extreme violence it ended in complete retrocession. It is by no means uncertain that if the soil had been in the least predisposed to tuberculosis, we should have encountered the gravest accident, and even a fatal issue would have been inevitable.

Let us now pass to the history of the tubercular iritis. The ocular affection was announced by redness, with a little lachrymation. On the entrance of the patient at the hospital, in March, 1894, a yellowish deposit could be made out at the inferior external portion of the iris. At this point there developed a staphyloma, yellowish white at its summit, which extended to form a tumor shaped like a mushroom, hemispherical, slightly constricted at its base, pale gray in color, sending prolongations into the superior and inferior portions of the iris. The cornea was implicated, the eye soft, the vision almost nothing, and the inflammatory action limited to the circumference of the tumor, with neither pain nor paralysis. The condition of the eye continued to grow worse until the month of July. At this time there was no longer any trace of the iris nor the anterior chamber. The yellowish tumor attacked the cornea and destroyed it throughout the greater part of its extent. It finally made its appearance on the external face of the globe. In the presence of these devastations, judging that the hour was near when the tubercular neoplasm would spread beneath the conjunctiva and diffuse itself to some distance, Professor Coppez decided to perform enucleation July 5, 1894. The healing of the operative wound went on normally. The second eye remained healthy.

Microscopical Examination of the Enucleated Eye.—After hardening for several months in Müller's fluid, the eye was embedded in celloidin and sections made in the following manner: forty numbered crystallizing pens were prepared; in each one six successive sections were placed and one mounted from each. In this way were obtained fifty interesting sections of the anterior globe. Nothing abnormal was found in the posterior hemisphere, the choroid being scarcely congested. The iris was the primary seat of the tubercular infiltration. This membrane was invaded in its entirety and the process was exactly limited posteriorly by the ciliary muscle. In the muscular tissue there hardly appeared

a single tubercle, and another confined to the choroid at the angle of the ora serrata. There were some other scattering tubercles, less important, in the ciliary processes; while, at the periphery, the iris preserved its normal appearance, toward the pupillary region there was hardly a trace of the structure of this membrane. There appeared several bands of a new formation of fibrous tissue, which separated the tuberculous agglomerations one from the other. These are classical tubercles; very numerous giant cells, encircled by their customary train of epithelial and small round cells. There were no vessels.

The anterior chamber was invaded, the tumor progressed toward the cornea. Here Descemet's membrane offered a stubborn resistance; its débris is found plaited and rolled up, even in the midst of the tubercular mass. The border succumbs first, then the cornea is invaded in its turn, and the neoplasm goes on to the anterior epithelium. Under its attacks the corneal lamellæ after a time are completely effaced. The anterior epithelium resists for a long time; it even disappears entirely only at the summit of the tumor. Elsewhere it sometimes becomes thickened, proliferated, and sends prolongations toward the tubercular mass; sometimes it becomes thin, its nuclei pale, its cells filled with vacuoles. In the corneal tissue that remained unharmed there were numerous vessels engorged with blood, accompanied by a multitude of leucocytes, a sign of violent inflammatory reaction.

Finally the subconjunctival tissue at the level of the border is also injected, inflamed, and œdematous; some tubercles having already appeared.

Bacteriological Researches.—The pus from a subcutaneous abscess, inoculated into the anterior chamber of a female rabbit, at once provoked a slight inflammatory reaction. Then the eye resumed its normal appearance, but this calm was of short duration; a typical tubercular iritis, of extreme violence, soon declared itself. The process extended to the choroid and vitreous body; the eye became enormous, panophthalmitic; the cornea became vascular and broke down. The glands of the neck became implicated and acquired a size equal to the head of the animal. After some months the rabbit died of cachectic.

Contrary to the rule, the search for microbes was easier. In the first preparation were found two characteristic bacilli, adjoining each other on the surface of a giant cell.

ACUTE RHINITIS.

BY ISAAC C. SOULÉ, PH. D., M. D., FREEPORT, ILL.

SYNONYMS.—Coryza, acute coryza, acute nasal catarrh, acute rhinorrhea, acute blennorrhea, cold in the head, snuffles; Latin: catarrhalis nasalis, stillicidium narium; German: schnupfen; French: rhume de cerveaux, enchifrènement.

Definition. — An acute inflammation of the lining membrane of the nasal passages, participated in by the turbinated bodies, accompanied by an activity not usually met with in an inflammation of the other mucosa, giving rise, as it does, not only to an extreme turgescence of the parts involved, but also to a very profuse, serous exosmosis and mucous secretion. This term should be confined to idiopathic inflammations, and not made to include those conditions of turgescence of the nasal mucosa arising from idiosyncrasy, as the various manifestations of hay fever, since such are due to a local morbid process, and are a purely vasomotor paresis, and not inflammatory.

Ætiology.—An acute rhinitis may result from traumatism, as the inhalation of hot steam, hot air (particularly if dry and dusty), chemicals, viz., fumes of nitric ac., phosphorus, ammonia, bromine, chlorine, iodine, mercury, osmic ac., digitaline, or sanguinaria. It may also mark the commencement of certain diseases, particularly the exanthems. In by far the large majority of cases, however, it is the direct result of some indiscretion or exposure to cold, v. s. damp cold feet, exposure to draught, chill, sitting on the

damp cold ground or stone step, or any sudden checking of perspiration.

Many authors have, and still do, claim it to be contagious. Anglade reports an epidemic in which an entire army was prostrated. McKenzie apparently regarded it as contagious. MacBride says, "It is a perfectly well known fact that the affection is contagious," and yet in the same paragraph, and the one following, admits that all efforts to prove it such have failed in every instance. On the other hand, Ivins seems to regard it as contagious only when accompanying some of the exanthems. Sajous states positively that it is non-contagious; many others make similar statements. Personally I should class it among the non-contagious affections, and would explain those rare occasions in which it has seemed contagious by regarding it as not *true, uncomplicated* acute rhinitis, but rather as some of the various forms of influenza or hay fever. This is the explanation given by Frank Bosworth and numerous other authorities.

It is usually taught that acute rhinitis—or rather repeated attacks of this malady—is responsible for the condition known as hypertrophic rhinitis. That it augments and aids in the furthering of that condition I do not question, but that it *causes* it I doubt. Rather I should consider the chronic inflammation a predisposing cause of the *acute* disease.

That scrofulous, psoric, syphilitic and rheumatic diatheses are powerful factors in predisposition none will question. These would act just as powerfully, perhaps more so, in the primary development of a mild chronic inflammation, which, weakening the nasal mucosa, make it a favorite site for acute inflammations.

We spend much of our lives in an artificially heated atmosphere, which is usually much warmer than the outside air, thus exposing the mucous membrane of the nose to repeated and violent changes of temperature, with the consequent sudden afflux of blood to the turbinateds that the

inspired air may be warmed. This of itself is sufficient to cause a *mild* chronic inflammation of those bodies.

In further substantiation of this view may be cited the well-known fact that while in children and *young* adults the usual seat of the acute attack is the mucosa of the nose, as the person advances in years the order is reversed; the acute attack more frequently manifesting itself first in the larynx or bronchia and, working upward, finally ends in the mucous membrane of the nose.

The chronic inflammation, having extended, involves successively the mucosa of the naso-pharynx, pharynx, larynx, and bronchia, thus weakening them.

Many theories have been advanced as to the process of "taking cold"; the most tenable one and, I think, the one usually adopted, being that of the disturbed equilibrium of the bodily or animal heat production by the sudden chilling of some part.

It is not by the lowering of the entire bodily temperature that we "take cold," but invariably by exposure of a comparatively small portion, thereby causing a congestion of some distant, weakened part; this is most frequently the nose, as the turbinates are richly supplied with blood vessels, and the ever changing hygroscopic condition of the inspired air demands an almost constant variation of the blood present in them, thus they are rendered unusually susceptible to turgescence and inflammation.

The Pathology may be divided into three stages, (1) abnormal dryness of the membranes, accompanied by turgescence; the vessels being engorged and tortuous, the blood current retarded, the white corpuscles collect along the vessel walls. (2) The white corpuscles and serum escape, permeate the tissues and make their way to the surface, giving rise to an excessive discharge. This stage is also accompanied by turgescence, but it is not so great as in the former. (3). The white corpuscles present in the tissues give rise to the formation of new cells and an active stimulation of all normal functions. This is the stage of new growths. The discharge is lessened, is

mostly of mucus and undeveloped (new) cells, thicker, more opaque, and muco-purulent.

Symptomatology.—This hardly needs any attention, as all are familiar with it, and we will hurry on to the

Differential Diagnosis.—It hardly seems possible that so simple and common a malady should require a description of the differential diagnosis, and yet many mistakes are here made.

There are two important conditions which are often mistaken for acute rhinitis, viz., hay fever in its several forms and acute ethmoiditis. In the first of these, acute rhinitis, an inspection of the nasal mucosa will reveal a high state of inflammation, the lumen of the nose entirely obliterated, the turbinateds and entire mucosa of a bright red.

In hay-fever, which is due to vasomotor paresis, the turbinated bodies alone are usually involved, and while they pour out an abundance of serous discharge, the mucous membrane has a pale bluish-gray tinge, presenting no evidence of inflammation, and that of the septum is rarely involved. The history is also of great assistance.

In acute ethmoiditis the symptoms are almost identical with those of acute rhinitis, differing only in that the frontal headache is of much greater intensity and duration, and the sneezing almost continuous, being especially persistent. Rhinoscopically we find hyperæmia, which is reduceable by the free use of cocaine when we can trace the source of discharge—which, in contrast to that usual to acute rhinitis in all but the last stage, is a *bright* yellow to the median fossa; or, if this be inaccessible on account of the enlargement of the middle turbinated, to the fissure between that bone and the septum.

It is of grave importance that this disease be recognized early, as otherwise it will lead to an extremely obstinate complication of the ethmoid cells.

Complications.—Aside from the cells just mentioned the antrum of Highmore is occasionally invaded.

The tear duct is also occasionally blocked, although Dr.

Allen of Philadelphia, in an article on "The relation between nasal catarrh and the closing of the lachrymal duct," maintains that this can only happen as the result of atrophy, necrosis, or osteitis.

Involvement of the Eustachian tube is rare, unless previously the seat of a mild chronic salpingitis. The tendency, however, to extend beyond its original area of involvement is fortunately not very great.

Treatment.—Hahnemann, in his *Organon*, says, when speaking of the physician, "He is at the same time a preserver of health, when he knows the *causes* that disturb health, that *produce* (cause) and *maintain* disease, and when he *removes them* from the *healthy* persons," or, as another translator has put it, "when he knows *how* and *does* remove them (the causes) from the healthy before they have time to act—that is, produce disease."

If then we would be *true* masters of the art of healing, which Hahnemann says in another paragraph is the physician's *highest* calling, we must *prevent*, as well as *cure* disease.

Foremost among the preventives of acute rhinitis come *Dress and Bathing*.

Wool is by far the best material from which to make our clothing. It always retains its peculiar kinky nature, even when woven into textile fabrics, allowing the free passage of air and gases, thus materially assisting the skin in maintaining the normal equilibrium of animal heat and disposing of effete matter.

The inclination is to dress too warm, "to bundle." We would have fewer attacks of acute rhinitis if we wore constantly one weight of woollen next the skin, and made frequent changes of outer clothing as required by variation of temperature. Encourage your patients to clothe the feet and limbs warmly. Our most frequent patients are girls and women; one of the prime reasons for this is their mode of dress.

The majority wear several thicknesses of clothing about the waist, many that abomination a "chest protector,"

and almost invariably a muffler of some nature about the neck, while often there is only one thickness of clothing, and that of cotton cloth, on their extremities, with feet incased in cotton hose and tight-fitting, thin-soled shoes.

Thus the parts most apt to be deficient in animal heat are constantly those most exposed to sudden chilling.

Encourage them to leave off their muffler and chest protector and place their equivalent on the arms, legs, and feet.

Many people complain that they cannot wear wool next the skin on account of the pricking. As almost all manufacturers make their goods with a glazed outer surface, this pricking can to a great measure be avoided, by directing them to turn the garment wrong side out, thus bringing the smooth, glazed side next skin and having them laundered on the smooth side.

Bathing is perhaps more important than clothing as a preventive. The cold *shower* or plunge is the most efficacious bath, when it is well borne, but not *all* can endure it. When it is well borne the reaction follows closely, almost instantaneously upon emerging from the water. The skin becomes a rosy red and a feeling of warmth permeates the entire body. The duration should be only momentary, and *immediately* upon emerging a warm *woolen* bath robe or blanket should be thrown about the body, which is afterward dried at leisure under it, using considerable friction with a flesh brush or coarse crash towel.

Where neither the plunge nor shower bath are well borne, recourse should be had to cold sponging, followed immediately by vigorous friction as in the bath. Particularly should this sponging include the neck, well up to and including the ears, arms, bust in entirety, legs and feet. The best results will be obtained by advising this bath to be taken in homeopathic doses—that is bathing a part at a time and after drying it another and so on. This should be done twice a day: morning upon first arising, and evening just before retiring. It is sometimes advisable, as in the particularly weak or unusually busy patient, to direct

the bathing of the neck, arms, and bust in the morning and feet and legs at night. If habitually, faithfully, and persistently followed, this will alone accomplish wonders for the habitual "cold-taker." By it I have frequently been successful in breaking up the habit, even when firmly established by long continuation.

As preventives, the Turkish and Russian baths I believe to be of so little value I will not discuss them. They rank more as luxuries than remedial agents. It seems almost superfluous to say all local nasal conditions of chronic inflammation should be thoroughly removed, and I think *careful* examination will, in all cases of those who are frequent sufferers from acute rhinitis, reveal some morbid process in the nasal, naso-pharyngeal, or pharyngeal spaces. One of the prominent facts repeatedly noticed is the rarity with which patients take cold after commencing treatment for chronic troubles.

During the attack the efficacy of treatment seems to be differently regarded by different observers, the consensus of opinion of those of the dominant school being that little, if anything, can be done to cut short an attack once it be well established. Here, however, we of the homeopathic school have the decided advantage.

When the attack begins, during the first stage, before the serous discharge has begun or is fully developed, the free inhalation of alcohol, together with a few drops of aconite 6, will cut it short, as though by magic. These measures, however, are of no value after the second stage is well established.

My own treatment in this stage is the free application of a 15 per cent. to 20 per cent. solution of cocaine, which reduces the turgescence; this is followed by an application of a solution of 5 to 10 per cent. antipyrine and menthol, which, together with the indicated remedy, usually is successful. Sometimes, where the cocaine reveals a considerable amount of hypertrophy, I make use of the cautery as in an ordinary case of chronic hypertrophic rhinitis, but this procedure requires extreme caution, as, if not success-

fully done, it adds preceptibly to the patient's discomfort. Frequently I use no local means whatever, relying entirely upon the remedy.

It is a custom, almost universal, among the laity, and with a great many physicians as well, to resort to camphor to break up a cold. This should be discouraged for the very good reason that crude camphor is an almost *universal* antidote for the homeopathic remedy. Encourage the use of alcohol instead, and, if you think camphor indicated, give it potentized.

Of Remedies.—Their name is legion, almost any one of our six hundred or more *may* be indicated, and each one of us has his favorites. Those which I herewith give are, of course, those I use the most frequently.

First, after aconite, I think will come, for children, *nux vomica*. These patients are usually "habituals." There is a great amount of watery discharge, with comparatively free breathing during the day or alternate stoppage of first one nostril and then the other; at night, the reverse condition; nose dry and stuffy, mouth breathing, frequent sneezing, burning, smarting of the eyes, nose, mouth, and post-nasal space; dull frontal headache. Frequently some concomitant symptoms are also to be found.

Arsenic and *arum triphyllum* come next in order of frequency. Both have abundant discharge of thin, hot, excoriating watery mucus from both eyes and nose, accompanied by a disagreeable burning sensation.

Ars., however, has extreme thirst for small quantities of water, frequently repeated, some stomach aggravation, extreme prostration, peculiar pallor and aggravation after twelve, noon and night.

Arum triph. has stoppage of nose at *night*, with frequent sneezing. The conjunctiva is more apt to be red and inflamed. The smarting of eyes more intense, with gushing of tears upon opening them. Discharge may also be streaked with blood.

This remedy should never be given low, nor frequently repeated, as it is prone to produce aggravations.

Gelsemium: Summer colds—accompanied by chilliness, goose flesh up the back and on abdomen, fullness of carotids, languor, and drowsiness. Fever without thirst, and headache as of a band drawn tightly about the head, aching of eyes and occiput, feeling as of top of head being lifted, wedged up. Relief from perspiration, involvement of right tonsil. Throat and ear with loss of hearing. Watery discharge. Takes cold easily, with almost every change of weather; discharge easily slips down into throat, especially while talking; keeping up a cough, and hawking.

Ammonium carb.: Colds of hysterical females, nose stopped at night, profuse acrid fluid discharge during day, morning nose-bleed.

Sanguinaria can. (nit.): Much sneezing, acrid fluid coryza, nostrils sore, *raw, scraped*, denuded sensation in nasopharyngeal opening of nares, also of naso-pharynx. This the most prominent symptom of sang. It also has much sneezing, a dull frontal headache, and a dry throat. When the discharge is thick, muco-purulent, and greenish, think of merc., kali iod., and puls. This latter is always relieved by getting out of doors, is also inclined to be lachrymose, but because you find the opposite do not think puls. not indicated, as it is one of the few remedies producing *both* moods in its provings, and while it is usual to find the patient mild and easily induced to cry, you may find him morose, thoughtful, almost quarrelsome. This patient takes cold easily from damp feet, worse about 5 to 7 P. M.; always worse in a warm room.

Where merc. is indicated, the discharges are very corrosive. Throat apt to be involved, either side but more frequently R.; much and frequent empty swallowing, not much if any thirst, large amount of saliva, metallic taste, membranes bleed easily.

Kali bich. is occasionally, but not frequently indicated. When it is, its keynote is the *tough, stringy, tenacious, almost undetachable* mucous discharge, nose stopped, plugged up; with severe pressive pain at base, relieved by pressing between thumb and finger. This remedy, being essentially

a remedy for chronic rhinitis, is only useful during the third stage of the acute variety.

Merc iod. et kali iod.: This has the thick greenish putrid discharge; salty, musty taste, excessive in amount, with absolute closure of nasal passage, but it also has the typical thin watery discharge occurring in the early stages of the disease. As a routine prescription for acute coryza I think it will cure more cases than any *one* remedy in our materia medica.

Of the so-called tissue remedies, ferrum phos. in the early stages, followed by kali mur. later in the disease, has proven very effective.

ABSTRACTS FROM CURRENT LITERATURE.

Price-Brown (Toronto).—Clergyman's Sore Throat.
—*Am. Medico-Surg. Bull.*, No. 14, 1896.

The author excuses the ambiguous title of his paper and quotes several authors to show that the term, "clergyman's sore throat," is generally understood to mean either chronic follicular pharyngitis or chronic laryngitis. The term having no definite meaning, and the throat troubles to which the clergy are subject being by no means limited to any particular form, he advises the dropping of so unscientific and ambiguous a term. After mentioning nasal or naso-pharyngeal obstruction as the cause of the majority of chronic throat troubles and giving the physiological reasons for this belief, the author cites ten cases of what are usually called clergyman's sore throat. All of these cases had more or less hoarseness and sore throat but these symptoms arose in each case from an entirely different cause, as may be seen from the following epitome: In one case there was a large polypus in one nasal cavity; in one a dislocated columnar cartilage; in one a twisted or contorted uvula; in one hypertrophy of the faucial tonsils; in one ulceration of the hyoid fossa; in two there were septal ridges; in two catarrhal hypertrophy of the post-septum; in two pharyngeal granulations; in three turbinal hypertrophies; in one, the most hopeless of all, there was uncomplicated laryngeal disease.

PEARSALL.

Curtis, G. Lenox.—Oral Surgery; Theory and Results.—*Am. Medico-Surg. Bull.*, No. 17, 1896.

The author writes very strongly and feelingly of the ignorance displayed by the average physician and surgeon when confronted with diseased conditions of the teeth and the near and remote troubles of which they are the cause. Although the mouth is

the gateway through which the food that nourishes the body must ordinarily pass and should receive the most careful consideration, the average physician considers it beneath his dignity to make a very thorough investigation for fear of being classed with "dentists." Four very interesting cases are cited, showing the vast amount of relief that may be given a suffering patient by a surgeon who has a knowledge of the possible causative conditions.

PEARSALL.

Hamilton.—A Case of Xerostomia.—*Centralblatt f. Laryngol.*, xii., 1896 (from the *Australian Med. Gaz.*).

This rare condition was found in a woman, forty-six years of age, who gave a family history of rheumatism and gout. She began to have a feeling of dryness in the nose, mouth, and throat, and when seen, eight months later, the whole mucosa of the upper air passages was seen to be dry and glistening. Swallowing was difficult. Electrical, mechanical, and chemical stimulations of the salivary glands were employed without result. The author believes the condition due to a disorder of the central nervous system. [There is usually no pathological condition discoverable in the salivary glands, and the disease is always found in women. usually past middle age.—ED.]

PEARSALL.

Boulay.—Epileptiform Crisis and Tonsillar Hypertrophy.—*Rev. Hebdomadaire de Laryngol.*, xvii., 1896.

The author records a case of true epileptiform crisis occurring in the early morning, characterized by an aura beginning in the tongue, then twitching of the lips and facial muscles, which was completely cured by removal of hypertrophied tonsils.

PEARSALL.

Cheatham, William.—Hay Fever; the best Treatment for Stay-at-Homes.—*The Laryngoscope*, October, 1896.

The writer details a number of cases to illustrate his method of treatment, which is, briefly, as follows: After applying cocaine to the parts, a pledget of cotton is dipped in a fifty per cent., solution of chromic acid and an application made to the full length of both inferior turbinates, the lower half of the middle turbinates, and the lower two-thirds of both sides of the septum. After two or three minutes the nose is carefully washed with an alkaline

solution, and sprayed with a mixture of eucalyptol, camphor, cocaine, and vaseline. A spray was given for home use consisting of aqua eucalyptol, aqua camphor, and extract hamamelis (distilled), equal parts. One treatment is usually sufficient but occasionally has to be repeated. Constitutional treatment is very necessary, consisting of valerianates, hypophosphites, zinc phosphite, and antirheumatics.

PEARSALL.

Jones, MacNaughton.—Nasal Hypertrophy in its Relation to Ear Disease.—*Ann. de Mal. de l'Oreille*, xxii., 1896.

In examining three hundred cases of aural disease the writer found but sixty-nine cases of hypertrophy of the turbinateds and eighteen deviations of the septum. This is about twenty-five per cent., and shows that hypertrophy of the turbinateds and deviation, as ætiological factors in deafness, are much less frequent than was at first thought probable. He speaks very strongly of the too frequent and vigorous treatment directed toward the turbinateds in diseases of the ear, and advises against the too free use of the cautery and snare.

PEARSALL.

King, W. H.—The Development of the Higher Vocal Register by Electricity.—*Hom. Eye, Ear and Throat Jour.*, December, 1896.

The author gives a very clear exposition of the theory of voice production and the muscular arrangement controlling the vocal cords. To gain the best results the interrupted galvanic current must be used and must be applied at the proper motor points. It is impossible to find these points within the larynx, and if it were not the endolaryngeal application would be dangerous. By experimentation Dr. King has been able to locate the motor point of the external laryngeal nerve which supplies the crico-thyroid muscle. It may be easily reached by "placing the electrode along the posterior border of the thyroid cartilage, about an eighth of an inch above a line drawn directly backward from the *pomum Adami*." To locate the motor point of the inferior laryngeal nerve, which supplies the arytenoideus and crico-arytenoideus lateralis, the operator should carry "his finger back along the side of the cricoid cartilage until he reaches the point of articulation with the inferior corner of the thyroid cartilage. Just back

of this point the distinct beats of the carotid artery will be felt. The electrode should be firmly pressed between these two points and the nerve will at once respond. The small-sized Erb electrode can be used for this purpose, but one made of the same diameter, but more oval in shape, is better." The action of the interrupted galvanic current is to increase the nutrition of the muscles by active exercise without producing strain or fatigue. There is also the well-known catalytic action described by Remak.

The conditions in which electricity is indicated are: 1. In unequal development or strength of the laryngeal muscles; one side being stronger than the other. 2. When the laryngeal muscles are constitutionally weak, a condition of local neurasthenia. 3. Cases of improper use of the voice, resulting in weariness of the muscles and "breaking" of the voice. In chronic congestion of the vocal cords. In acute congestion electricity would be contra-indicated.

PEARSALL.

Axenfeld (Marbourg).—The Ætiology of Conjunctivitis.—*Société Ophthal. de Heidelberg.*—*Rev. Gén. d'Ophtal.*, No. 10, 1896.

In spite of all the recent researches and the great number of infectious agents known (Koch-Werks bacillus, pneumococcus, streptococcus, diplobacillus of Movax, Bach's micrococcus), the ætiology of conjunctivitis simplex is still far from clear. The same is true of its epidemiology, which ought to be especially well known.

At Marbourg, in Germany, I have found that conjunctivitis due to pneumococcus is encountered more frequently than any other, while I have never been able to discover the Koch-Werks bacillus. The conjunctivitis produced by pneumococci is almost always benign; it attacks infants, and, as Guasparini remarks, is rarely found in adults, and when it does occur it is generally very grave. Corneal complications are rare, but in the newborn there is often a consecutive affection of the lachrymal sac (Parinaud). This disease often resembles phlyctenular catarrh (eczematous), and, sometimes, true phlyctenulæ are formed. I would remark, in passing, the ætiology of phlyctenulæ is more obscure than was thought by Burckhard and Bach, for the bacteriological results are far from concordant.

The pneumococci are often found in large quantities during the period of secretion, and may be distinguished very well by their characteristic form and their manner of staining, by Gram's method. They ought not to be confused with gonococci.

Pneumococci were the cause of an epidemic of conjunctivitis in a school, although, strange to say, there was not abundant secretion, nor did the products of cultures, when inoculated in man, occasion a catarrhal conjunctivitis. I tried them upon myself, and, instead of a simple conjunctivitis such as the children had, and which was cured in a few days, I developed a follicular conjunctivitis, which still remains. Less painful and with less secretion, it resembles trachoma in its tenacity.

The pretended virulence of the pneumococcus is then doubtful. Morax did not believe it. The epidemics show, perhaps, the following facts: A general unhealthy influence determines, in a large number at a time, a bad condition of the conjunctiva. The pneumococcus, which is very often found upon the normal conjunctiva, then becomes a morbid agent, as it does in croupous pneumonia.

It is not necessary, then, to close a school in which conjunctivitis due to pneumococcus appears. It is sufficient to exclude only the sick children.

In epidemics, the bacteriological examination is of great importance.

DEADY.

Alexander.—Embolus of the Central Artery of the Retina; Its Function Re-established in About Six Years.—*Société Ophtal. de Heidelberg.*—*Rev. Gén. d'Ophtal.*, No. 10, 1896.

The author reported the following case, remarkable for its rarity. A man fifty-one years of age, suffering from cardiac hypertrophy, presented himself on account of visual difficulties of the right eye. The left eye had been very feeble for six years in consequence of a partial embolism of the central artery. Under the influence of massage of the eyes and the internal administration of digitalis, the left eye, which was considered as lost, recovered in a few weeks a vision equal to one-half. The pupil, which was in a state of mydriasis, became contracted. The blanched appearance with the ophthalmoscope remained the same, but the arteries seemed to be better filled with blood. There had existed

for six years a partial embolism, which had permitted the passage of a quantity of blood sufficient to nourish the retina, but insufficient to allow of vision. It was not long before the cardiac hypertrophy produced cerebral troubles such as aphasia, and the vision fell below one-tenth.

DEADY.

Schmidt-Rimpler.—Atrophy of the Macular Fibers of the Optic Nerve in Diabetes.—*Société Ophtal. de Heidelberg.*—*Rev. Gén d'Ophtal.*, No. 10, 1896.

When there is found in a patient symptoms of a toxic retrobulbar neuritis, central scotoma for colors, discoloration of the temporal part of the optic nerve and diminished vision, it is not necessary to suppose tobacco or alcoholic poisoning. Diabetes can give rise to the same phenomena and its poisonous action occurs much oftener than is thought. In examining one hundred and forty diabetes, thirty-four cases of retrobulbar neuritis were found, which were caused by neither the abuse of tobacco nor alcohol. It is important to examine the urine in every case of retrobulbar neuritis, and a simple analysis should never suffice, especially if it be negative, for there are diabetics who do not at all times show evidences of sugar. In a case of diabetes with central scotoma for colors, the microscopical examination of the optic nerves would always show an evident atrophy of the macular fibers. The prognosis in cases of diabetic retrobulbar neuritis is better than in neuritis due to tobacco or alcohol, in fact the disease may be very much aggravated if the patient is a smoker. The treatment consists in following without increasing its severity and forbidding tobacco and alcohol; the facts showing that the macular fibers of the optic nerve are very sensitive to all toxic influences.

DEADY.

Sutcliffe, W.—Exophthalmic Goiter Cured with Thy-mus Extract.—*British Medical Journal*, March 27, 1897.

The patient, a male clerk, age twenty-five, stated that he had enjoyed good health up to within six months previous to applying for treatment. He presented the characteristic symptoms of Graves' disease—decided enlargement of the thyroid, proptosis, palpitation, and a pulse at 136. After trying the usual remedies he prescribed 5-grain tablets of thymus gland extract, commencing with one tablet a day, and gradually increasing the dose

to three daily. Improvement was rapid, the proptosis disappeared, the thyroid reduced in size, and the pulse beats decreased in frequency, until, at the time of writing, the above symptoms have entirely disappeared. The treatment extended over a period of seven months.

RITCHIE.

Archer T. Brittin.—Foreign Body in the Lens for Sixteen Years, the Lens Remaining Clear.—*Lancet*, March 20, 1897.

A case of the above is reported as occurring in a male of thirty years. He first noticed a cloud before the left eye, obscuring somewhat the print of the paper which he was reading; this was four days previous to his attendance at the hospital (September 17). Examination revealed an acuity of vision of six-eightieths, with a correcting glass of $+1.75D$. Ophthalmoscopic examination showed the lens to be cataractous, with many well-marked stellate striæ, which obscured the details of the fundus, while lodged at the posterior part of the lens was indistinctly seen what had the appearance of a fine piece of glistening wire, behind which was a small opaque area of the posterior capsule, forming a white background to the object. The foreign body appeared to be about three mm. long, and half a millimeter broad, lying nearly vertically in the lens, its upper extremity being inclined slightly to the temporal side; its lower being perceptibly curved forward. On the lower and nasal quadrant of the iris was a fine blue-black line about a millimeter long, running parallel with the pupillary border of the iris, and slightly nearer it than the periphery. No opacity of the cornea was discernible. After questioning him, it was elicited that, when fourteen years of age, he had loaded an old gas-pipe with powder which prematurely exploded, inflicting slight wounds on the right side of the face, but he declared that the eyes were not injured in the least. The pupil was dilated by the use of a tropine, which was to be used for four days, at the end of which time he returned for further examination. The lens had become more opaque, and the vision reduced to six-sixtieths, while the foreign body was seen with greater difficulty, and the fundus was much obscured. There were no symptoms of irritation. He was admitted to the hospital for extraction of the lens and foreign body. On the 24th inst., on examining the lens, the opacity was found to have cleared up entirely, save a few very small and

short striæ at the periphery, and the foreign body was clearly discernible in the lens ; the fundus was seen to be normal, and vision was six-twelfths with a $+ .75$ D. lens. This condition led to a postponement of the operation. On October 1 the vision had fallen to six-sixtieths again, and the opacity returned and increased. The eye was not irritable, and the lens seemed to be breaking down rapidly. On the 5th inst. the lens was removed by the combined operation, and was found to be very fluid, slightly milky, and was easily delivered. On examination of the detritus no foreign body was found, but on raising the upper lid it was disclosed resting upon the ocular conjunctiva just above the incision. Recovery was uneventful, with an ultimate vision of six-ninths.

RITCHIE.

Snell, Simeon.—On Certain . Apparently Organic Tumors of the Orbit which Disappear Under Medicinal Treatment.—*Lancet*, January 23, 1897.

Under the above title the author reports three cases. In the first there was an apparent enlargement of the lachrymal gland of several weeks' duration, which rendered the eye prominent and restricted the eyelid in its movements. The tumor grew rapidly in spite of the administration of iodide of potassium. Its growth ceased later, and after some weeks it was decided to remove it. The patient wished to visit his home first, and permission was given, conditional on his reporting after a short interval. In a few weeks he returned. There was a marked decrease in the size of the growth, although he had taken no medicine in the interval. Two weeks later he presented himself again, at which time nothing but the edge of the tumor could be felt. It disappeared entirely in the course of a few weeks. It was supposed to be a chronic inflammatory enlargement of the lachrymal gland.

The second case was that of a woman of forty years, who three months previous had noticed a slight prominence of the left eyeball, which rapidly became more marked. She also suffered from hemicrania involving the same side, which had been benefited, however, by treatment at the hands of her family physician. Movements of the globe were not restricted ; the upper lid was reddened and slightly œdematous. Palpation disclosed a tumor at the outer part of the orbit, which also extended into the

orbit above the globe, but the greatest bulk was situated on the floor of the cavity, extending to the inner side, in which situation it projected as a rounded, somewhat hard growth over the edge of the orbit. It was slightly tender to touch. Vision was not impaired, and the intra-ocular circulation was not interfered with. There was no specific taint. Removal of the globe and contents of the orbit was advised, but a trial of iodide of potassium was suggested. A month later her physician wrote, "the tumor has subsided in a marvelous manner." Two months later it had entirely disappeared. The iodide was administered, starting with a 5-grain dose, and increasing until she had 60 grains daily.

The third case was that of a man of forty-two years, who for several weeks previous to applying for treatment had noticed a slight swelling of the left upper lid, accompanied latterly by an aching pain. The corresponding eyeball was pushed forward, and the upward movements were restricted. There was also a partial ptosis, with inability to raise the lid. Examination with the finger revealed a large nodular growth between the globe and the roof of the orbit. Complete absorption of the tumor took place under the administration of potassium iodide. He denied any specific trouble.

RITCHIE.

Arslan and Catterina.—Serotherapy in Ozena.—
Archiv. ital di Otol., iv., 1896.

It will be remembered that some time ago Belfanti and Della Vedova, having discovered a bacillus peculiar to ozena, conceived the idea of treating these cases with antitoxic serum. The success which attended their experiments was reported as extremely flattering.

Arslan and Catterina have carried on a similar series of experiments, and while their reports corroborate those of the former writers, their results were not as promising.

There can, however, be no doubt that the serum exerts a very decided action upon the nasal mucous membrane. The lining membrane of the nasal fossæ, which before the injection was a deep red, afterward became pale and white. In the early part of the treatment there were frequent congestions of the nasal mucous membrane, accompanied by epistaxis. The odor was lessened or completely disappeared. In some cases a scarlatinal rash was produced.

PEARSALL.

Thompson, St. Clair.—Antisepsis and Intranasal Medication.—*Revue Int. de Rhin., Otol. et Laryngol.*, October, 1896.

The principal points made by the author are that the nasal cavity is practically aseptic, and therefore it is not necessary to attempt to render it artificially more sterile. The presence of a foreign body in the nose tends to excite a profuse watery mucous secretion, while the vibration of the cilia tends to remove very rapidly any solid particle which may be present. In cleansing the nose of purulent accumulations, it is not necessary, therefore, to use strong antiseptic solutions, alkaline solutions being much more to be preferred. Great care should be taken to disinfect both the hands and the instruments used before beginning an operation. For this purpose the author recommends a five per cent. solution of carbolic acid.

PEARSALL.

King, Wm. H.—The Development of the Higher Vocal Register by Electricity.—*Hom. Eye, Ear, and Throat Journal*, December, 1896.

The author gives a very concise and interesting description of the physiology of sound as concerned in the production of the human voice. In discussing the manner of production of sound by single vibrating strings, it is found that the pitch or rate of vibration depends upon three elementary conditions: the length of the string, its density, and its tension. What is true of the string of a monochord is true of the vocal chords, and it is the variation in one or all of these elements which causes the difference in pitch in the human voice; the tension playing the most important part in the production of the high notes.

“If we analyze the vibrations of the string of a musical instrument, we find it composed of two distinct sets of vibrations, those of the string as a whole, unless it is dampened, and those of certain sections of the string which vibrate independently; and, as we have seen, the vibrations were more rapid when the string vibrates in sections, so we find here that the independent sections vibrate more rapidly than the string as a whole. The result is a difference in the notes produced by the two sets of vibrations. The note produced by the vibrations of the string as a whole is known as the fundamental tone, while the higher ones produced by vibrations of sections are known as the overtones. It is these

overtones which give the distinctive sounds to different musical instruments, and were it not for them the human ear would be incapable of distinguishing a piano from a violin or other musical instrument. If a vibrating reed be placed at the opening of an organ pipe, and a blast of wind forced through it so as to cause the reed to vibrate, a musical sound is heard. This sound, however, does not emanate directly from the air set in motion by the tongue of the reed, but by the vibration of the column of air in the pipe, which in turn is set in motion by the vibration of the reed, and, like the stringed instrument, has two sets of vibrations which produce a fundamental note and overtones." If a gentle blast of air be driven through the reed, the fundamental tone will predominate; if the force of the air be increased a certain amount, the first overtone will be heard, and by still further increasing the force a second or a third overtone may be produced, which will completely cover up the fundamental tone.

Analyzing the human voice, we find that it partakes of the character of both of these sound-producing instruments. "The singer has the power by certain muscular movements to so change the length of the vibrations produced by the vocal chords, by changing the shape and length of the cavity of the mouth, that he can by this means change the pitch of the fundamental tones. He can adjust and proportion the length of the vibration, but his power in this direction is limited, and in order to produce the higher overtones, or, in other words, the higher notes, there must be an increase in the rate of the vibrations of the vocal chords, and by this increase form certain notes and thus shorten the distance and increase the rate of vibrations. We, therefore, come upon the solid fact that in producing the higher notes we must depend upon the rapidity of the vibrations of the vocal chords."

The author discusses at length the muscular mechanism and innervation of the larynx, and then considers the application of electricity as a means of increasing the rapidity of vibration of the chords.

The author is opposed to Sir Morell McKenzie when he expresses the opinion that "electricity applied externally acts as a local tonic only and may be useful in allaying irritation, etc., but it is of no use in developing muscles. In order to accomplish this it must be given internally."

"The reason why Dr. McKenzie did not have success with the

external application was due to a faulty understanding of the use of electricity in muscular development."

The best results are obtained in developing muscles by applying the interrupted galvanic current to the motor points of the nerves supplying those muscles. The writer locates these points and shows that they can only be reached externally. The best electrode has been found to be a modification of the small-sized Erb electrode.

The external branch of the superior laryngeal nerve supplies the crico-thyroid muscle, and the motor point of this nerve is just at its division and may be reached by placing the electrode "along the posterior border of the thyroid cartilage, about an eighth of an inch above the line drawn directly backward from the pomum Adami." The inferior laryngeal nerve supplies the arytenoideus and crico-thyroidei lateralis, and its motor point is located by carrying the finger backward along the cricoid cartilage until the articulation with the inferior horn of the thyroid is reached. Just behind this point the pulsations of the carotid may be felt, and the electrode should be firmly pressed between these two points.

The paper then considers the conditions to which this treatment is applicable. The cases in which electricity is of especial value are those in which there is unilateral weakness of the muscles of the larynx. Here the weaker muscles may be stimulated without interfering with the stronger, and so an equilization of strength obtained, while, with the usual vocal exercises, the stronger muscles are strengthened more in proportion than are the weaker, because of their greater ability to assimilate nourishment. Muscular weakness, from improper use or overuse of the voice in professional singers, is much benefited by this treatment.

According to Remak, one of the features of the catalytic action is to decrease the passive congestion while at the same time the arterial circulation is increased. Therefore the hoarseness accompanying passive congestion of the mucous membrane surrounding the chords, and of the chords themselves, should be favorably influenced by the proper application of electricity.

PEARSALL.

Minor, Jas. L.—Aural Complications in Mumps.—*N. Y. Med. Journal*, March 27, 1897.

Eight cases are reported, of which three were entirely confined to the middle ear; one began in the middle ear and extended to the internal ear; three were confined entirely to the internal ear, the cochlea alone being affected; one in which it began in the internal ear and extended first to the middle ear and then to the cochlea.

In the cases involving the internal ear, the result was absolute deafness to all tests. Of the cases confined to the middle ear, two were cured and one relieved.

DEADY.

Oppenheimer, H. S.—Atrophy of the Optic Nerve from Lactation.—*N. Y. Med. Journal*, March 20, 1897.

The patient, a woman æt. twenty-nine, healthy, with the exception of headaches for previous two years—fourth child. Presented about eight weeks after confinement, complaining the left eye was foggy and useless. She had been pale, anæmic, and had headaches. The urine was normal, with the exception of some excess of uric acid. The ophthalmoscope revealed a papillitis, which extended for some little distance into the retina. Vision was reduced to counting fingers at one foot, eccentrically. She was advised to stop nursing the child and to go to the country, and was given tonics, including iron. Later on strychnine was used, under which vision improved so that she could count fingers at ten feet, but the nerve now showed a distinct atrophic condition.

DEADY.

Haynes, W. H.—Recurrent Ptosis with Anæsthesia of the Supraorbital Branch of the Fifth Cranial Nerve.—*N. Y. Med. Journal*, February 13, 1897.

The patient, a bright, intelligent schoolgirl, aged eleven and one-half years, with a good negative family history, has attacks of headaches at times. In September, 1896, felt headache in top of head and over eyes, without nausea; could not open the right eye, which was full of water and felt sore, with morning agglutination of the lids. Examination revealed the following: Apparently well nourished, complains of pain in the top of the head and right eyeball; says sight in the right eye is foggy; right upper

eyelid covers up the half of the eyeball; there is a loss of tactile and pain sense throughout the right half of the forehead and temporal region, covering the distribution of the supraorbital branch of the trifacial nerve of that side; otherwise she is perfectly well.

Diagnosis: Migraine with ptosis and anæsthesia of the supra-orbital branch of the fifth nerve.

Under doses of $\frac{1}{100}$ of a grain of aconitine, three times a day, there was a disappearance of the pain and gradual recovery of power over the eyelid. After six weeks elevation of the lid was perfect, there was still slight pain in the eyeball, but sensation and vision were normal.

DEADY.

Robson, A. W. Mayo.—Mastoid Suppuration followed by Lateral Sinus Pyæmia, Treated by Partial Excision of the Sinus and Ligature of the Internal Jugular Vein in the Neck.—*Lancet*, February 6, 1897.

The patient was a stout, healthy man of thirty-seven, with a history of chronic suppuration of the right middle ear, dating from childhood. The discharge was periodic, occurring two or three times a year, and was always preceded by severe headache and pain in the ear. The attacks lasted but a short time and were never severe enough to compel him to discontinue his work. The history of the present attack is as follows :

The ear commenced to discharge in July, 1895, the preceding pain not being as severe as in former attacks and occurring only at night. The discharge, consisting of yellow pus mixed with blood, continued until October 27, when it suddenly stopped. Three days later, while at work, he was suddenly seized with very severe pain extending over the right side of the head, with a tendency to shivering. The next day he was confined to his bed, and on the following day was seen by Mr. H. Keighley, who found him suffering with great pain in the ear, temperature 102° F., pulse 96, and respiration normal. There was no discharge. He was removed to Batley Hospital. Three days later the membrane was seen to be bulging and congested, and paracentesis being performed, a quantity of fetid pus escaped, which was followed by relief. Within the following twenty-four hours the patient had a severe rigor in the morning, followed by a temperature of 105° , pulse 130, and respiration 22 ; six hours later he had a

second chill, which was followed by a third in three hours. In the evening he was seen by the author in consultation who was asked to operate. An incision over the mastoid process, two inches in extent, was made, the bone opened and a quantity of fetid pus evacuated, after which the cavity was irrigated, iodoform applied, and free drainage adopted. The lateral sinus was freely exposed in the operation and was found freely bathed in pus, but as the blood in it was fluid, it was not interfered with. The temperature fell to normal and remained so for the next ten days, the patient seeming to be making favorable progress. On the eleventh day, however, he had another rigor, followed by a temperature of 105° . Farther operative procedure was determined upon. The original wound was enlarged and the bone chipped away and the lateral sinus was found to be black and filled with septic clot. The sinus was laid open and as much of the walls removed as possible, and it was freely washed up to the torcular herophile, until blood flowed freely from the distal end of the sinus, which was then plugged with gauze. As the lower end could not be satisfactorily cleansed, he cut down on the internal jugular vein in the neck, and ligated it in two places about a half an inch apart, in order to prevent septic clot being carried into the circulation. Pain and headache and rigors ceased, although the temperature ranged during the next ten days from 96° to 105° , when a quantity of pus was discharged from the wound. The temperature then fell to normal, and the patient made a rapid recovery.

RITCHIE.

Kohn, Albert.—Two Nasal Cases: One of Primary Chancre, One of Dermoid Cyst.—*New York Med. Jour.*, March 27, 1897.

The first case was a man, thirty-five years of age, married, waiter by occupation. Right fossa found completely filled with a compact mass of granulations, starting about one inch from the orifice, and so extremely sensitive that examination was almost impossible on account of pain. Nevertheless, the mass was curetted away, causing great suffering and considerable hemorrhage. In two days the entire growth was reproduced. It was again thoroughly removed and on the second day following was again present as at first, but was now accompanied by a typical secondary maculo-papular syphilide covering the entire body,

with the other symptoms of primary infection; the cervical glands on the side with the nasal trouble being more enlarged than those of the remainder of the body. A hard body situated posterior to the granulations was felt with the probe and was believed to be the primary chancre, as a thorough examination of the penis and body failed to reveal any sign of initial trouble. Patient responded rapidly to the use of inunctions. Six months after there was almost complete obstruction of the right nostril in the region of the middle turbinated. No history of the mode of infection.

CASE II. Intranasal Dermoid Cyst. Woman aged sixty-five. Both sides of nose almost completely obstructed by growths springing from the middle turbinated bodies. These were removed intact with the cold snare and were found to be multilocular cysts, containing a thick cheesy material, and distinctly partitioned from one another. Under the microscope they proved to be dermoid cysts. No recurrence. PEARSALE.

Clemesha, J. C., Marked Variation from time to time in the Color of the Irides of a Young Woman.—*Medical Record*, March 27, 1897.

The writer reports a case of a young woman in which the color of the irides varies from that of black through the various shades of brown, brownish yellow, and yellowish green, sometimes resembling the color of cats' eyes. The young woman is strong and healthy, has suffered from no serious illness, although her hair changed from a black to a gray at eighteen years of age. Mental emotions seem to be a factor in the change of color of the irides. RITCHIE.

Bayer.—Relation between the Female Sexual Apparatus and Laryngeal Affections.—*Rev. Internat. de Rhinol.*

Although the relationship existing between the female sexual organs and the larynx is well known and frequently demonstrated, the following case, reported by the author, is well worth noting, as it shows the direct interdependence existing between a well-marked throat lesion and a condition of the reproductive organs. A woman, thirty-four years of age, revealed upon examination an ulcerous tuberculous laryngitis. There was a great deal of swelling of the epiglottis and arytenoids. There were pronounced

symptoms of laryngeal stenosis, so pronounced indeed that it was feared that tracheotomy would be necessary, and the patient was referred to the hospital. The author was asked to go and see her after a lapse of eight days, and found that in the interval the patient had had an abortion at three months, and that the swelling of the larynx had so subsided that there was no question of tracheotomy.

PEARSALL.

Hansell, Howard F.—The Treatment of Simple Glaucoma.—*Philadelphia Polyclinic*, January 2, 1897.

After a résumé of the symptoms of the disease and the opinions of the various authorities respecting the treatment of the disease, he rejects everything except the instillation of a solution of eserine. His objections to other methods of treatment are as follows :

(1) Iridectomy on one eye has been known to precipitate an attack of acute glaucoma in the sound eye.

(2) In order to be of value, the artificial pupil should include one-fifth of the iris. The astigmatism consequent upon the corneal incision and the irregular refraction of the extra-pupillary portion of the lens are detrimental to good vision. It not infrequently happens, also, that cortical opacities of the lens coexist with simple glaucoma.

(3) Malignant glaucoma—rather indefinitely described by Schweigger (*Arch. of Ophthalm.*, April, 1896), and accurately defined by Friedenwald (*Arch. of Ophthalm.*, October, 1896), as a painful and nearly always incurable blindness, following the operation of iridectomy for glaucoma—may be encountered.

(4) Eserine, a painless application that may be continued for years without danger, is of indubitable value.

RITCHIE.

Leszynsky, Wm. M.—Congenital Absence of Outward Movement of Both Eyes.—*N. Y. Med. Journ.*, February 27, 1897.

Male patient, four years of age, born in the United States, of German parentage. Patient born at full term, no complications ; weighed twelve pounds at birth. Between fourth and fifth months of pregnancy, the mother was very much frightened by seeing a boy fall from a roof and killed, within a few feet from where she was sitting. Patient has always enjoyed good health, has escaped infectious diseases common to infancy and child-

hood. Bright child, sleeping well and free from nocturnal enuresis. No history of injury to the head. Parents healthy, with no history of syphilis, alcoholism, or eye-defect; no consanguinity. Six children in the family, all the others being healthy and well-developed mentally and physically—and with normal eye muscles. Toward the end of the first year the patient began to draw his head backward, and it was noticed that both eyes turned inward. Status præsens—patient is a large healthy-looking, well-nourished child. He has the habit of drawing his head backward and looking upward. When told to look to the right or left, he turns head and shoulders toward the side mentioned. There is convergent strabismus, more pronounced in the *left* eye. He is unable to move either eye outward beyond the middle line. Pupils normal, tongue protruded well, palate highly arched, teeth regular and normally developed. Naso-pharyngeal catarrh, with adenoid vegetations. Cranial measurement—circumference, 51.5 centimeters. Binauricular arc, 33; naso-occipital arc, 28.6. Antero-posterior diameter, 17; greatest transverse diameter, 15—these measurements all coming within the physiological variation of the fully developed adult skull; heart and lungs, normal; examination of the urine, negative. Under thorough atropinization, continued for some time, the refraction was corrected, being found to be hyperopic $2\frac{1}{2}$ diopters. Under the use of glasses, the backward movements of the head diminished much in extent and frequency and the convergence of the eyes decreased materially. Pupils equal, and react normally to light and to convergence. There is convergent concomitant squint, more marked in the *right* eye, with which he seems to “fix.” Stereoscopic vision is present, but was probably only occasional and transient.

When the head is held perfectly straight and he is told to look at a small object in the *right* temporal (both eyes being uncovered), the *left* eye deviates inward, the inner border of the cornea just reaching the internal canthus. In looking at the same object in the *left* temporal field, the *right* eye turns inward to the same degree. Although there is absolutely no action of either externus, it would appear that conjugate action is not completely abolished, being partly performed by the respective interni.

Electrical tests showed that both facial nerves and muscles reacted normally to a weak faradic current. There is no indication of abnormality of any of the other cranial nerves.

DEADY.

BOOK REVIEWS.

ANNUAL OF UNIVERSAL MEDICAL SCIENCES, AND ANALYTICAL INDEX : A yearly report of the progress of the general sanitary sciences throughout the world, edited by CHARLES E. SAJOUS, M. D., Paris, and seventy associate editors, assisted by over two hundred corresponding editors, collaborators, and correspondents ; illustrated with chromo-lithographs, engravings, and maps ; five volumes. 1896 : The F. A. Davis Co., Publishers, Philadelphia, New York, Chicago.

The present edition of this fine work, in common with its predecessors, is full of interest for the medical scientist in every department. Representing the work of nearly three hundred editors and correspondents, its pages are filled with extracts culled from the worldwide field of medical literature, and the medical reader, whatever his line of thought, cannot fail to find much to interest him. Of the subjects covered by the Journal, we find 150 pages devoted to ophthalmology, 44 pages to otology, and 104 pages to diseases of the nose, throat, and glandular system of the neck ; the abstracts comprising embryology, anatomy, physiology, pathology, and treatment, together with descriptions of the various new instruments, methods of operating, etc.

Landes of New York reports a case of congenital bilateral anophthalmos, in a newborn infant—no trace of the eyeballs could be found. The appendages were normal. There was a supernumerary digit on each hand and foot. The child lived but a few weeks.

Graeff of Berlin has found neuroglial spindle cells in the optic nerve, extending from the optic tract to the periphery of the retina. The body of the cell is small, somewhat drawn out and starlike, being provided with about twenty-five processes which entwine with the neighboring processes without anastomosis. The retinal spindle cells were found only in the ganglion and nerve-fiber layers. The author regards this as conclusive evidence that the optic nerve and retina are simply prolongations of the brain.

Experiments have been made, by Bellarminoff and Dolganoff of St. Petersburg, upon the eyes of rabbits, to determine the effects of certain pathological conditions upon the diffusion of liquids passed into the interior of the organ. Uncomplicated puncture of the cornea increased the diffusion during the first two days following the operation, this effect disappearing entirely on the fourth or fifth day. The effect of section of the cornea was more powerful and lasted longer. At the end of $2\frac{1}{2}$ weeks the filtration effect of the scar tissue disappeared entirely. Iridectomy lengthened the effect, but here the increased diffusion began to lessen after fourteen to sixteen days, and disappeared at the end of a month. The coefficient of diffusion was much greater in eyes from which the lens had been removed, but only for a short time. The coloration of the vitreous found in aphakic eyes did not exist in any other class of cases. This property of the lens of preventing the diffusion of substances into the deeper ocular tissues leads the authors to query if the explanation for the general panophthalmitis which occurs after extraction is not found in the absence of the lens, suppuration, which occurs when that organ is *in situ*, being often limited to the cornea. They state that the lens with its adnexa forms a kind of barrier against the invasion of pathological elements. An inflammatory degeneration of a corneal wound was found to lessen the absorptive power, while all inflammatory processes of the cornea very markedly increased the diffusive power of that membrane.

Superficial stationary nebulæ of not too great extent were found to have no appreciable effect upon diffusion, while changes occurring in the deeper layer decreased the diffusive power, but to a very slight degree. A leucomatous condition of part, or the entire cornea, reduced the diffusion to one-half, the same being true of phthisical eyes. In eyes where the tension had been artificially increased by discission of the lens the diffusive power was lessened. An increased temperature of the external coats of the eyes, produced by the application of hot fluids, increased the diffusion.

Katz has found that in order to get the best vision with a stenopaic slit, the width of the opening must be correspondingly narrower, as the degree of ametropia grows higher.

Andogsky and Dolganoff of St. Petersburg show that in 150

eyes affected with astigmatism, the amount of astigmatism, as measured by the Javal-Schiotz ophthalmometer, averaged greater by .50 D. than that found subjectively by glasses during paralysis of the accommodation by atropine or scopolamine. The axes as determined by the ophthalmometer must be inclined from 5° to 10° in the correcting glasses. Marlow of Syracuse, in a study of 2000 eyes, found simple hypermetria in only 9° of the far-sighted eyes and simple myopia in only one-third per cent. of the near-sighted eyes. In this latter anomaly he finds astigmatism, anisometropia, and heterophoria more frequently than in other forms of ametropia, and since the myopia has developed in eyes that were originally hypermetropic, the myopic process has evidently selected those individuals in whom astigmatism, anisometropia, and heterophoria were present.

Hughes believes that the failure to cure more cases of convergent strabismus by glasses results from the neglect of the surgeon to order total correction. He tabulates 21 cases so treated, of which 12 were cured, 2 improved, and 1 was too recent to determine the result. Kuhn states that he has always obtained a perfect cure in entropion by cauterization of the lid in a line parallel with the margin and to the depth of the cartilage. In ectropion he has had the same good results by applying the same procedure to the conjunctival surface.

In hernia of the iris Grandclement of Lyons splits the tumor with a Graefe cataract knife, cutting from side to side in the direction of its long axis. The fluid contained in the pocket escapes and the tumor disappears, leaving a clean wound which is rapidly closed in a few hours by a fibro-cellular tissue. By this means all danger of immediate or remote infection, or of staphylococci, is avoided.

Fage of Amiens gives a history of a severe double iritis originating in ulceration of the nasal cavities from ozena. Bacteriological examination revealed the presence of the coccobacillus of Loewenberg in great numbers in the discharges from the nasal cavity, pharynx, and conjunctival cul-de-sac, but the examination of the blood and of the anterior chamber gave negative results. Treatment by washing the conjunctival sac and lachrymal canal with sublimate, hot nasal irrigations, applications of ichthyol and weak solution of chloride of zinc to the nose, with cupping, atropine, cocaine, and hot applications to the eye, was followed by rapid improvement.

He reports a milder case of iritis, due to a naso-pharyngeal catarrh, which was immediately relieved by treatment directed to the nasal condition. Rothschild of Paris has seen absorption of a localized opacity in a lens, which had been provoked by the entrance of a particle of iron into that body. The foreign body remained imbedded in the lens, and a resultant vision of .5 was retained.

In cases of lachrymal disease which do not subside under the ordinary form of treatment, prior to operating for cataract, Blumenthal of Riga closes the canaliculus by the thermo-cautery.

Weeks of New York gives the results obtained in 100 consecutive extractions of immature, senile, and some forms of zonular cataract. The author has never seen inflammatory conditions awakened by the presence of cortical substances in the eye after removing immature cataract. He states that he has yet to regret the extraction of immature cataract. Straub of Amsterdam has treated a case of detachment of the retina by opening the sclera at the site of the detachment and injecting a few drops of 1-5000 bichloride into the orbital tissues through the conjunctival wound. One week later the retina was reattached and the visual field was nearly perfect in extent. Zentmayer and Posey, from a study of 167 cases of glaucoma simplex, draw the following conclusions: Simple glaucoma occurs in either sex, with about the same degree of frequency. The majority of cases occur in the fifth decade. It occurs in about 0.736 per cent. of the cases which seek treatment at ophthalmic hospitals. All forms of ametropia are equally liable to the affection. With the exception of articular rheumatism and influenza, which appear to induce changes that favor its development, there are no other particular systemic diseases which predispose to it. It is a binocular affection, although a period of twenty months usually intervenes between the manifestation of the symptoms in the two eyes. The two most prominent subjective symptoms are failing sight and headache, but neither of these possesses characteristics which would serve to differentiate them from those occurring in other forms of ocular disease. This form of glaucoma is slowly progressive; $2\frac{1}{2}$ years being the average length of time required to induce blindness after the appearance of the initial symptoms. Signs of irritation in the anterior segment of the eye are usually absent, but 4.52 per cent. of the cases exhibit

such changes. An inflammation of the optic nerve is a constant attendant upon glaucoma, being noted in every eye containing a pathological excavation. It manifests itself as a low-grade neuritis affecting the entire structure of the nerve, and seems to render the nervous tissue more liable to the peculiar kind of excavation which is the most constant characteristic of glaucoma. No one of the four symptoms most commonly observed in glaucoma is essential to the disease, for it may occur without an excavation, without the field being contracted, without the diminution of central visual acuity, or without rise of tension. The excavation, however, is the most constant symptom, occurring in 81.43 per cent. of all the eyes which were examined. Although the excavation shows a marked predilection to occupy the temporal half of the disk, no part of the nerve escapes. In incipient cases it appears at the temporal edge of the disk as a continuation of the physiological excavation; from here it gradually spreads over the head of the nerve, encroaching upon its structure until only a narrow rim of nerve fibers remains at the nasal edge. Central visual acuity may remain normal although the field for form and color be encroached upon (in 10.77 per cent. of cases). The tendency of the scleral ring to become visible all around the disk and its disposition to broaden, especially to the temporal side, are significant of the degree of intraocular tension to which the globe has been subjected and go hand in hand with the extent and depth of the excavation. As the broadening of the ring, however, usually appears before the excavation, its presence in eyes possessing other symptoms of glaucoma should always excite suspicion of this disease.

Opacities in the refracting media are found in an unusually large percentage (86.25). These, however, are to be regarded as being more the result of senility than an expression of the glaucomatous state. Arcus senilis (39.92) and lenticular opacities (28.44) are the most common, while corneal opacities, directly traceable to the increased intra-ocular tension, occur in 20.38 per cent. of the eyes. Vitreous opacities occur in but few instances, and, originating in a choroiditis which complicates the disease, are not an essential feature of it. The cornea is the most liable of the refracting media to be affected by the glaucomatous process. The increase in intra-ocular tension, as determined by palpation, is not necessarily a constant factor, being detected in

109 eyes (32.63). Where the tension is increased the field will be distinctly cut or the nerve excavated. Rigidity of the sclera is often the first indication of increased ocular tension. This rigidity may be accounted for either by a connective tissue thickening in that tunic or by an actual increase in the intra-ocular tension, rendering the sclera more resistant to the examining finger. This shallowing of the anterior chamber exists in eyes where there is no excavation, but the converse is not true, for in every eye where there is an excavation the chamber will be shallow, seeming to show that the condition occurred before the increased tension had excavated the nerve. As the chamber grows shallower and the tension higher, the pupils will become larger; and the larger the pupil, the less there will be reaction to light. This is not always true, however, for in twelve instances where the tension was distinctly elevated, and there were well-marked excavations, the pupils were but $2\frac{1}{2}$ millimeters in size and they responded perfectly to light and convergence stimuli. Other signs of increased intra-ocular tension, such as the choroidal halo and the venous arterial pulses occurring in such a small proportion of cases, show that they are not constant factors of the disease and that their absence cannot be regarded as negative evidence for the existence of a glaucomatous state. Increased tension limits the action of accommodation in only 34.88 per cent. of the cases. In the great majority the limitation of the field consists in a concentric contraction for color and form to an equal extent.

The consideration of the relative amount of contraction in the form and color field, often adopted in the distinction between an atrophic and a glaucomatous excavation, is valueless, as the findings show that in quite a large proportion, 13.06 per cent., of the cases, the color field was relatively more affected than the form. Indeed in 16 of these 32 cases, 50 per cent., the form field was normal, while that for red was contracted to 20° or less. Contrary to the finding of other observers, the most frequent type of restriction of the visual field consists in concentric limitation of the entire field, and not in the contraction to the nasal side. The limitations of the field in this latter position in 7.92 per cent. of the cases evidenced that this portion of it was peculiarly liable to be altered by glaucomatous process, for the other portions were not equally affected by the disease. Full

fields are not inconsistent with glaucoma, for in 129 eyes where the state of the tension, the degree of the visual acuity, the character of the excavation, and the extent of the field were noted, 30 eyes did not exhibit any lessening in the extent of their fields for form or for color.

In the department of otology, the chapter on mastoid disease contains much interesting matter, but space will not allow of further particularization.

This work is a very valuable one, and every physician will find profit in its perusal.

AUTOSCOPY OF THE LARYNX AND THE TRACHEA. (Direct examination without mirror.) By ALFRED KIRSTEIN, M. D., Berlin. Authorized Translation (Altered, Enlarged, and Revised by the Author) by MAX THORNER, A. M., M. D., Cincinnati, O. With twelve illustrations, pages 68. The F. A. Davis Co., Philadelphia, New York, and Chicago. 1897.

Several articles appearing in German medical journals, relative to the new method of examining the larynx and trachea devised by Dr. Kirstein, aroused considerable interest and curiosity among laryngologists which is now satisfied by this careful translation by Dr. Thorner, revised by the author, giving a detailed description of the technique of the operation, together with its possibilities and restrictions. The selection of a name strikes one as perhaps unfortunate, being somewhat misleading when viewed according to our usual methods of derivation.

By this method it is possible to view the larynx directly without the use of a mirror and also to use uncurved instruments in endolaryngeal operations. The author does not expect that autoscopy will take the place of the present methods of laryngeal examination, for in many instances autoscopy is neither desirable nor possible, and its field of usefulness will be as an addition to our present methods of diagnosis and treatment.

We shall await with much interest the result of its practical application.

NOSE AND THROAT. By GEORGE H. QUAY, M. D., Professor of Laryngology in the Cleveland Medical College; Member of the American Institute of Homeopathy, Ohio State Homeopathic Medical Society, etc. Seventeen illustrations and 214 pages. Boericke & Tafel, Philadelphia. 1897.

The author has succeeded eminently well in producing a book which will prove of great interest, not only to the student of

laryngology, but to the busy practitioner who desires and demands a short, concise, and practical description of a disease by a skilled writer on a special subject.

Of especial value are the therapeutic indications accompanying the descriptions of the various diseases, and which are of still greater importance as being the outcome of Dr. Quay's wide experience.

—Dr. E. H. Linnell, a graduate of the College of the New York Ophthalmic Hospital of many years' standing, is about to publish a work entitled "The Eye as an Aid in General Diagnosis." Dr. Linnell is a careful observer and an excellent ophthalmologist, and should be able to write a valuable book on the subject. Later we shall hope to present a review of the volume.

—Books received too late for review in this issue : "Diseases of the Eye and Ophthalmoscopy," by Dr. Eugen Fick ; P. Blakiston, Son & Co., Philadelphia. "Retinoscopy," by James Thorington, M. D.; P. Blakiston, Son & Co., Philadelphia. "Diseases of the Eye," by N. L. Macbride, M. D.; Boericke, Runyon & Ernesty, New York. "Diseases of the Ear, Nose, and Throat," by Seth Scott Bishop, M. D., LL. D.; The F. A. Davis Co., Philadelphia. "The American Year-book of Medicine and Surgery," by Geo. M. Gould, M. D.; W. B. Saunders, Phila., 1897.

NOTES.

—The American Ophthalmological Otological, and Laryngological Society has been reorganized, and we are informed by the able and energetic Secretary, Dr. E. J. Bissell, that a large membership has already been obtained. The society will hold its first annual meeting on June 23, in the City of Buffalo. A number of papers from some of our best men are already announced and the gathering should be a success. With the present largely increased number of specialists in these branches, there is no good reason why such a society should not be successful in the homeopathic school. We have many men of sound education and great ability, and it only needs that they shall interest themselves in this work to make the society valuable to its members and to suffering humanity.

—Dr. F. Park Lewis has removed his office in Buffalo from 188 Franklin Street to 454 Franklin Street.

—Dr. F. B. Kellogg, formerly of Tacoma, Wash., has removed to No. 420 West Sixth Street, Los Angeles, Cal.

THE JOURNAL OF OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY.

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EDITORIAL.

THE delay in the issue of this number of the JOURNAL is due to the fact that, for personal reasons, it has been absolutely impossible for the editor to do the necessary work in getting the matter in proper shape for printing. Arrangments have been made which, we trust, will enable us to be more punctual in the future.

THE SYMPTOM, TINNITUS AURIUM.*

BY HENRY C. HOUGHTON, M. D., NEW YORK.

TINNITUS AURIUM is simply a symptom ; at first, a red light—a danger signal, suggesting possible disease in some part of the auditory mechanism ; at last, a distressing factor in the life of the individual, which must have been an experience in that of the one who wrote Ecclesiastes, for these are his words: “The doors shall be shut in the streets” (he was deaf) “when the sound of the grinding is low” (he had a tinnitus of short vibrations), “and he shall rise up at the sound of the bird” (many a patient has looked for a swallow other than water) . . . “and the grasshopper shall be a burden” (the tinnitus was mixed, high-pitched like the sound of a locust), “and

* American Institute of Homeopathy, Buffalo.

desire shall fail" (both for personal life or reproduction of the species).

How vivid the picture! Many times have we heard, "I wish I might die, and be rid of this infernal racket."

At one time, this symptom stood at one extreme of ear disease, as "nervous deafness," and another symptom, "otorrhea," at the other, to express all ear disease, other than nervous.

One beneficial result of modern otology has been the recognition of disease of the middle ear, as the cause of subjective symptoms. Now, nervous deafness will be limited to the internal ear, a close differential diagnosis leading to treatment, with a hopeful prognosis. Many cases of disease of the middle ear have in times past been abandoned to the progressive changes, because the general practitioner classed them as "nervous," on account of the tinnitus.

Any effort to relieve this symptom must be based on a study of causation. This may be external to the auditory mechanism, in the form of reflexes of dental, nasal, or other peripheral irritations. It may be within the aural territory; then one can hardly find a point from the rim of the auricle to the lamina cribrosa which may not be fertile with objective bases for subjective symptoms. Traumatism of the auricle, stenosis or closure of the meatus, foreign bodies, or even exposure of the membrana tympani to the air, raise mental protest. Scales of cutis free on the drumhead will cause a distress that is excessive, and may be long endured because the source is passed unnoticed. The middle ear is still more fruitful, and modern research is making us aware of the possibilities of as fine shadings in differential diagnosis of the lesions of the acoustic nerve as have been made upon the optic nerve tract.

Let us now review in natural order the causation of this symptom. Any changes in the integument of the auricle and external auditory canal may produce it by peripheral irritation of the cutaneous nerves. But, in the great majority of cases, it is undoubtedly due to the accumulation

of scales of epidermis or exudation in the tissues, causing pressure within the middle ear, and modifying the intralabyrinthine pressure. The growth of parasitic germs, more especially the aspergillus, acts in the same manner, but usually the subjective symptoms are those of the foreign body, rather than those of audition. Accumulation of cerumen or foreign bodies of various forms acts usually in the same way. Sometimes we see marked exceptions to the general rule. I recall a case in which a fireman, connected with the City Department, came to the Ophthalmic Hospital, complaining of subjective sounds, vertigo, and symptoms along the sympathetic tract, even involving the shoulder and arm. On examination, a white mass was found at the edge of the drumhead, and upon touching this with the probe, it gave a sensation of stony hardness. On syringing a small piece of white quartz was thrown out, and all the symptoms disappeared as if by magic. The pebble was thrown into the ear by a stream from the hydrant, as the patient was washing his head.

Diffuse inflammation of the canal acts, of course, in the same manner as eczema of the auricle or auditory canal.

Injury or inflammation of the membrana tympani is a very potent cause for very diverse symptoms. The application of direct force will cause a sound as of breaking of any animal membrane. As this is followed by hemorrhage, a change is noticed to softer or bubbling sounds. The subjective symptoms resulting from an extension to catarrhal or suppurative diseases of the middle ear we will postpone for a later moment. The old time custom of syringing the ear for every form of aural disease undoubtedly has a reasonable basis, as the general practitioner gave relief in many cases. I recall one instance: a young man suffering from this symptom was treated with varying success. On instilling a glycerole of verbascum into the ear, immediate and permanent relief was obtained, and the only conclusion that could possibly be reached was that it removed dry scales from the drumhead, as there was apparently no other effect produced upon the external or middle ear.

In many cases of intense congestion of the drumhead, due to irritation by some instrument, as ear-spoons, or particularly due to large masses of impacted material, the subjective symptoms and acute sensibility of function must be due to the deep-reaching influence of the hyperæmia. The tinnitus, however, is sometimes noticed to occur for a considerable time after all traces of hyperæmia have disappeared. Extensive changes may occur in the drumhead as the result of external disease, rather than the middle ear disease, and such changes in the external layer of the three-fold membrane undoubtedly cause changes in the mobility of certain nodes of the drumhead, thereby modifying its complete mobility, and giving rise to changes in the vibration of the auditory ossicular chain, as well as the contained air of the tympanum, and we can easily see that intra-labyrinthine disturbance may result.

Before passing to the next division of our subject, it may be better to consider treatment in relation to its causation, rather than to discuss it later. The indication, of course, is to remove the exciting cause. The morbid changes in the integument of the auricle, auditory canal, or the drumhead are amenable to both local and internal remedies. I am not a stickler for either to the exclusion of the other. The internal remedy will undoubtedly do much, but the local means should never be neglected. There is a very general prejudice against applications of oil on the part of some of our old-school teachers. Experience leads me to use, and to advise the use of liquid vaseline in eczema, either acute or chronic, unless there is some idiosyncrasy on the part of the patient. For the removal of hardened masses of cerumen, or the softer accumulations, equal parts of fluid vaseline and sulphuric ether are very effective. The calendulated petroleum is antiseptic, and the verbascum glycerole may be substituted for it when the petroleum causes irritation of the skin. The growth of the aspergillus is terminated by the application of equal parts of glycerin, alcohol, and sulphuric ether.

There is no occasion to discuss the necessity or

the methods to be adopted for the removal of foreign bodies. It is simply useless to prescribe internal remedies for the relief of subjective symptoms, unless one looks to the objective and external cause. Inflammation of the middle ear is the greatest factor in the causation of tinnitus aurium—acute catarrhal inflammation. It is worthy of notice how slight a catarrhal inflammation on the one hand may give rise to excessive subjective symptoms, and how serious an inflammation of the same sort may be free from the same symptoms. Undoubtedly, your experience coincides with mine, in observation of musical people who were distressed beyond measure by catarrhal attacks that caused scarcely any hyperæmia of the drum-head, but gave rise to peculiar changes in the pitch of musical tones, or extreme sensitiveness, or annoyance from tones of particular instruments. Without doubt these conditions are due to those fine shades of overtones which give the quality to our various musical instruments. One might say, a modification of sound-color. Sometimes these symptoms are relieved by inflation, using Valsalva's method, because the Politzer method aggravates them, probably by a displacement of the ginglymus articulation. As catarrhal disease progresses, from its slighter to its more serious form, with extensive exudation, the subjective symptoms become more severe, and, as a rule, lower in pitch, due, no doubt, to the shortened vibrations. The symptom is not as distressing, however, in this form as in that usually known as "proliferous inflammation," or sclerosis of the middle ear. This form, otitis media hypertrophica, hyperplastica, sclerotica, etc., etc., being characterized by a loss of the submucous tissue, results in the excessive pressure upon the fenestra, thereby causing the intra-labyrinthine pressure. Connective tissue bands lying between the ossicula themselves, or between the drum-head and the ossicula, or between the labyrinthine wall and the drumhead, all are well-recognized factors in the causation of this symptom.

When the initial catarrhal disease passes rapidly to the

suppurative form the subjective symptoms are usually modified in intensity, and chronic suppurative inflammation is, as a rule, much more free from subjective symptoms than the chronic catarrhal form. We have all seen suppurative disease proceeding to fatal termination without annoying tinnitus.

In considering the treatment which is effective in relief of subjective auditory symptoms, based on lesions of the middle ear, there is more hope offered by internal remedies upon the acute catarrhal, the chronic catarrhal hypertrophic form, acute suppurative, and chronic suppurative forms, than upon the chronic catarrhal atrophic form. The well-known remedies belladonna, chamomilla, hepar, sulphur, mercurius, pulsatilla, are backed by a century and more of world-wide history. More recently capsicum, ferrum, phosphoricum, gelsemium, have not robbed the veterans of their honors, but demonstrated spheres of action peculiarly their own. In chronic catarrhal inflammation, with excessive exudation, the same is true of these remedies, not only for the condition itself, but for the acute exacerbations due to acute coryza, and I deprecate the use of the knife, in view of the fact that it is so frequently followed by a change to the suppurative disease. In acute and chronic suppurative inflammation, the same may be said of the internal remedies, but in my judgment it is necessary to resort, in the suppurative form, to the knife, in order to save the patient from greater destruction of the drum-head, and the readiness with which it repairs is sufficient warrant.

In the chronic form, we should use those measures which antiseptic surgery has demonstrated as not only wise, but obligatory. I have yet to see anything savoring of metastasis or suppression by the observance of such law.

I left the chronic catarrhal inflammation of the atrophic form to the last, because it is the opprobrium of the aurist. Here, too, I am conservative, as regards the knife. The simple fact is that our old-school colleagues, from being heroically radical, have become as excessively

conservative. While it is true that a few cases have been for the time being, and others—still fewer—permanently relieved, I myself am convinced that many have been made worse and have afterward been relieved by milder measures. And while massage by sound has, like other panaceas, been relegated to its proper place, I must admit that it has done more to modify, relieve, and, in many cases, absolutely abolish the subjective symptoms, than any other method of treatment. Conjoined with faradism recent observations argue that its effectiveness will be much increased.

Accepting, as most of us do, the vascular hypothesis of Theobald, anything that will tend to modify the rigidity of the middle ear mechanism must relieve the intra-labyrinthine pressure, hence, one must think well of those forms of 'pneumatic vibration, suction, traction, and so forth, which are more or less in vogue in the profession.

That the internal remedies will modify the mucous membrane of the middle ear we need not doubt, but any uniform results, of a satisfactory character, I have failed to see. The instillation of equal parts of fluid vaseline and sulphuric ether has been of decided service in a large number of instances, when used in connection with aural massage. Galvanization of the sympathetic, and faradization of the same, have their advocates, but I have in recent years leaned entirely to the faradization.

In discussing the internal ear, we are literally and metaphorically in a *labyrinth*. This much we say, that any injury to the temporal bone by severe concussion, or especially by a solution of continuity of the tissues, may give rise to immediate and continued subjective symptoms. The differential diagnosis of these conditions has been so thoroughly confirmed by *post-mortem* observations that it is unnecessary to argue the point. Not only so, but morbid symptoms, caused by the use of internal remedies, such as quinine and the salicylates of soda and potash, are constantly being presented to the aurists of our school. Independent of the toxic effects of

these drugs, there is every reason to believe that, not only in the senile stages of life, but much earlier in life, there is a parallelism to be drawn between lesions of the optic and auditory nerve. There is no reason in the nature of things why hyperæmia of the labyrinth, either on the cochlear side or the vestibular portion, along the branchings of the nerve to the internal auditory canal, and even to the auditory centers, should not be subject to all of those changes which have been more easily studied in the eye. Here, of course, we must depend upon internal remedies, and we are, in that respect, much better armed than our colleagues of the opposite school.

SPASM OF THE CILIARY MUSCLE WITH SYMPTOMS OF PARALYSIS OF OTHER MUSCLES.

BY ELMER JEFFERSON BISSELL, M. D., ROCHESTER, N. Y.

THE following case is one of the most marked examples of ciliary spasm I have seen, and is unique in the peculiar conditions accompanying it.

On December 7, 1894, Miss Alice T., age thirteen years, was referred to me by Dr. C. E. Walker. Her parents would be classed as neurotic; and at the age of three years she had convulsions which were ascribed to some gastro-intestinal irritation. Since that time, however, she has been in good health although possessing a moderately nervous temperament. Previous to the appearance of the ciliary spasm she had been attending school, and was under no unusual strain. The menstrual function was being established, but the trouble for which she consulted me seemed to have no relation to it.

One week previous to my seeing her, she had complained of an aching in her eyes, photophobia, and diplopia. The vision of her right eye was greatly reduced, and for three or four days the right lid had drooped and the face had become distorted. My examination yielded the following result:

The face markedly drawn to the left with all the attending symptoms of right facial paralysis; nearly complete ptosis of the right eye; converging strabismus of the right eye; homonomous diplopia increased by turning her head to the left; rotation of the right eye outward, much diminished; pupillary reaction good: and the fundus normal.

V. O. D. 4—200, V. O. S. 20—20

Javal, O. D. & O. S. $.50 \pm 90^\circ$ & 180°

Retinoscopy, O. D. — 8. O. S. + .50.

As there was such a wide difference in the refraction, I applied scopolin to each eye three times, at intervals of fifteen minutes; at the end of an hour, when the patient re-entered my private office, a very marked change had taken place. The face was less distorted, the converging strabismus had more than half disappeared, and the vision of the right eye was much improved. (I have no exact record of it.)

Retinoscopy, O. D. + 2. (instead of - 8.) O. S. + 2.
This indicated a difference from the first test of ten diopters in the right eye. I gave her a one-fifth per cent. solution of scopolin, one drop to be placed in each eye every four hours; and had her report the following day.

December 8.

Retinoscopy, O. D. & O. S. + 2.

V. O. D. + 2. \odot + .12 axis $90^\circ = 20 - 20$

V. O. S. + 2. \odot + .12 axis $90^\circ = 20 - 20$

The strabismus and facial paralysis had disappeared, only a slight ptosis remaining to indicate her previous trouble.

I ordered glasses, + 1.50 \odot + .12 axis 90° for both eyes, and a one-half per cent. solution of atropine to be used three times a day.

December 10. (Only three days after my first observations.) Stevens' phorometer showed orthophoria. There was no ptosis or other symptoms present. I discontinued the atropine, as the patient seemed to be cured.

January 8, 1895. The patient again returned in much the same condition as when I first saw her; with ptosis, converging strabismus, face drawn to the left, and the vision this time of both eyes quite reduced.

Retinoscopy, O. D. - 4. O. S. - 2.

Again I applied scopolin with the same magical result in an hour's time. I continued the atropine for four days, by which time all symptoms had disappeared, and up to the present date there has been no return of the trouble.

Last September I examined her eyes and found that she was wearing her glasses with comfort, and that with them her vision was normal. My record shows that at five and a half meters there was 2° of esophoria.

Conclusion.—1st. There could be no doubt as to the presence of ciliary spasm.

2d. The converging strabismus might have been due to spasms of the internal rectus, and the apparent facial paralysis of the right side, to spasm of the muscles upon the left; yet this seems hardly probable.

3d. The marked ptosis certainly indicated some paralytic element present.

4th. The prompt disappearance of the paralytic symptoms upon the reduction of the ciliary spasm would indicate that the latter stood in a causal relation to the former.

5th. It is interesting to note also, in the midst of these symptoms, that the size and reaction of the pupil remained normal.

FIVE CLINICAL CASES OF TINNITUS AURIUM.

BY HOWARD P. BELLOWS, M. D., BOSTON, MASS.

CASE I. *Treatment chiefly remedial.*—March 2, 1897. Mr. —. Age thirty-two. An inveterate smoker with typical smoker's throat. Septum perforated. General nasopharyngeal catarrh of long standing. A month ago first noticed a noise in the right ear, followed by slight deafness which has markedly increased during the past two days. The noise is not constant but is always excited by lying down, wakening him sometimes from a sound sleep on account of its intensity. In character it is described as a very distressing whirring or whizzing sound. Examination shows a catarrhal and depressed drumhead on the right side. Fork on the vertex heard best in the left ear. Air conduction best on both sides. F⁴ perceived on both sides.

H. D. R. w. = 23" = 32" traction by Siegle's pneumatic speculum.

H. D. L. w. = 53". Hydrastin mur. 3x.

March 9. R. w. = 36" = 42" pneumatic traction.

Sleeps better. No tinnitus for past three days. Continue hyd. mur.

March 20. R. w. = 35" = 48" pneumatic traction.

Slight return of tinnitus since last night. Relieved immediately by the traction. Continue same remedy.

March 22. R. w. = 50". No tinnitus. Patient dismissed.

CASE II. *Treatment remedial and electrical.*—December 7, 1892. Miss —. Age fifteen. For the past five months has had daily a great deal of humming, or buzzing, in the left ear. None in the right. No pain; no deafness or over-sensitiveness to sounds; no itching or local discomfort; some headache and vertigo; always aggravated in the morning. Nasopharyngeal catarrh present in slight degree only. Digestion good and sleeps

well. Is troubled with leucorrhœa and evidently with some uterine disorder. Suffers greatly on first day of menstruation. Fork on vertex heard best on the right side.

H. D. R. w. = 60".

H. D. L. w. = 52".

Tinnitus lessened immediately to about one-fourth its intensity by the passage of an induced static current from the ear to the back of the neck for three minutes. Lachesis 12x.

December 13. L. w. = 61". Tinnitus much lessened. Static electricity as above. Continue lach.

December 20. L. w. = 65". Tinnitus only twice during the week for few minutes. Case dismissed.

CASE III. *Treatment by Lucae's pressure-probe.*—March 28, 1895. Miss —. Age thirty. The right ear has been almost totally deaf for six years. For five years a constant ringing noise was present which, during the past year, has given place to a constant beating. Mt. thick, opaque, and retracted. Fork best by bone conduction. H. D. w. = 0. Acoumeter = 3" = 5" cath.

July 15. Eight treatments by inflation, etc., have given no relief. Lucae's pressure-probe tried to-day.

July 31. No tinnitus after the last treatment until two days ago, after excessive fatigue. Same treatment repeated.

October 24. No further treatment until to-day, when slight tinnitus is observed. H. D. acoumeter = 5" = 6". Lucae 9 times.

November 13. No beating but still, sometimes, a little singing. Lucae 9 times.

January 20, 1888. Twenty-six months have elapsed since the last date. The patient hears no better, but the tinnitus which troubled her constantly for six years has not returned since the four treatments by the pressure-probe.

CASE IV. *Treatment by Vibratory Massage.*—March 22, 1893. Miss —. Age twenty-two. Two or three years ago first noticed deafness, worst upon the left side, which has been gradually increasing. Accompanying the deafness is a constant noise of a buzzing character, also worst upon the left side, and an annoying sensation of fullness. No heredity. Mt. thickened, depressed, and without luster. Throat and nose both catarrhal. Fork from the vertex said to be best upon the left side. Bone conduction best upon both sides.

H. D. R. w. = 5" = 8" after inflation.

H. D. L. w. = 11" = 14" after inflation. Merc. dulc. 6x.

June 1. This patient has received eight treatments since the above date—one treatment each week. After inflation the vibrometer has been used for two minutes each time—the thump of the hammer upon the sounding board being always employed, with the exception of one treatment when the vibration of the larger string was tried. The tinnitus has almost wholly disappeared from both ears, being sometimes entirely absent for a week or more. The H. D. to-day = R. w. 19" and L. w. 17". The internal remedy has been merc. dulc. 6x throughout. The vibrometer, in my judgment, has been the chief agent in overcoming the tinnitus.

May 19, 1894. During the year (nearly) which has elapsed since the last date, this patient has received sixteen additional treatments, and is to-day discharged with H. D. R. w. = 36" and L. w. = 41". The tinnitus which was present for two or three years disappeared after the ninth treatment, upon the date last given, and for a year has never returned.

CASE V. *Treatment by the Similar Tone*.—September 15, 1891. Miss —. Age twenty-six. Deafness upon the left side, of long standing, and, during the past three months, a constant throbbing tinnitus in the left ear alone. Mt. nearly normal in appearance. Throat and nose in good condition. No heredity. Bone conduction best. Watch heard only upon hard pressure, and one-half inch distant after catheterization.

December 29, 1892. After twenty-six treatments, of various kinds, the tinnitus has shown no change or diminution. To-day, however, it becomes of a rushing or blowing character, like escaping steam. Hearing about the same.

October 30, 1894. Twenty-one additional treatments yield no perceptible results. For nearly two years the sound has continued to be of a blowing character, instead of the original throbbing. To-day partially withdrew a reed from the massage organ, as once suggested to me by E. B. Hooker, M. D., of Hartford, Conn., and transmitted to the ear, for four minutes, the loud rushing sound thus obtained. The tinnitus ceased wholly as the result of this treatment.

April 17, 1895. The same treatment as the above was repeated November 26 and February 26—wholly arresting the tinnitus each time. To-day the lessening noises are reported to have ceased, and the ear is free from tinnitus after several years of continuance. The hearing is not improved, but remains constant.

April 29, 1897. Two years more have elapsed, and the ear is reported to be still free from tinnitus, but as deaf as formerly.

EMPHYEMA OF THE ACCESSORY NASAL CAVITIES AS A CAUSE OF MENTAL DEPRESSION. A CASE.

BY GEORGE H. QUAY, M. D., CLEVELAND, O.

MY object in reporting the following case is to call attention to the mental condition frequently accompanying empyema of the accessory nasal cavities. In my experience the mental habitude is especially marked when the ethmoid cells are involved.

Whether this mental condition is due to the constant discharge of pus, with its frequent attending odor; or whether it can be attributed to septic intoxication, I do not know—possibly both are causative factors.

To those having experience along this line of work, the condition here referred to is probably not unusual, but to the profession generally, empyema of the accessory cavities as a cause of mental depression is not fully appreciated.

Mrs. C., thirty years of age, well educated, intellectually much above the average. Six years ago she had a severe attack of the grippe. Since then she has been very susceptible to head colds. The nostrils, especially the left side, were frequently occluded. The discharge and the nasal symptoms were such as are usually complained of in nasal hypertrophy.

But mentally the patient was very much depressed; she seemed to lose faith in all matters which she formerly believed in. Life seemed changed to her. She was conscious of this changed mental condition, and she recognized the fact that her family and friends noticed it. She often seemed preoccupied, but if asked what she was thinking about, answered that she was not thinking of anything. The patient was brought to me on

account of her nasal condition. The mental symptoms were elicited during my taking notes of her catarrhal trouble.

Briefly, I found a number of polypi in the left nostril; and there also existed an aggravated case of empyema of the ethmoid cells. I removed the polypi; took off the greater part of the middle turbinal, and scraped the cells as thoroughly as possible. A quantity of fetid detritus was removed.

It is not necessary to enter into the minutes of the treatment, as that is not the point I desire to bring out.

The third or fourth day after the operation the patient expressed herself as feeling as if something had been removed from her mind. Her family noticed an entire change in her disposition. She seemed more cheerful, and the world looked brighter to her. A friend of hers remarked that she acted more like herself than for years.

I do not present this case as positive evidence that patients presenting the mental state here described are always subjects of nasal polypi and ethmoiditis, but to make prominent the fact that empyema of the nasal accessory cavities is often attended by mental depression.

It is now nearly one year since the operation, but I am informed by a friend that the favorable condition continues. I have not during this time seen the patient, as she lives in a distant State.

TINNITUS AURIUM. CLINICAL CASES.

BY JAMES A. CAMPBELL, M. D., ST. LOUIS, MO.

BEING assigned a short paper on the above subject, a difficulty confronts me in the very beginning, for accepting the term tinnitus aurium to include all subjective noises heard, we find that these sounds may originate from diseased conditions, not only in the various parts of the organ of hearing itself, but also in other parts of the head and body, being transmitted to the ear either directly along mechanical channels, or indirectly by reflex action from the sympathetic and cerebro-spinal nerves to the auditory nerve. And since tinnitus auditus may thus originate from various distinct causes and localities, in offering clinical cases, to be at all comprehensive, it would be necessary to give cases illustrating the several particular forms.

The force of this suggestion is seen when we recall that tinnitus auditus may be caused by

1. Foreign bodies in the external meatus, as cerumen or other foreign substances, aspergilli, etc.
2. Localized congestion or inflammation in the external meatus.
3. Congestion or inflammation of the membrana tympani.
4. Otitis media, the most frequent cause.
5. Aneurismal bruit and pulsations.
6. Pulsations produced by pressure on the arteries of the ear itself, or other cerebral blood vessels, from congestion, tumor growths, or exudations; or constrictions of the foramina through which the vessels pass.

7. Certain diseases of the heart, aorta, etc.
8. Anæmia; and in general congestions to head.
9. Reflex irritations from the nose, teeth, hemorrhoids, etc., etc.
10. Muscular spasm in middle ear.
11. Mucous rattling, associated with middle ear secretions, etc., etc.

From this it will be seen that the treatments for tinnitus aurium must be as various as its causes, and that success in its treatment in each individual case must depend upon a correct understanding and diagnosis of the cause which produces it.

It is instructive likewise to recall the fact that, since the above is true, the use of internal remedies for tinnitus auditus has a place only in a certain and definite class of cases, and is by no means universal. We surely could not, in reason, expect any internal homeopathic remedy to cure a case of tinnitus arising from a mechanical cause, as wax in the external meatus, or aneurismal pulsations. And likewise vibratory massage, which has been so highly lauded of late, could not be of any benefit in the same conditions.

The description of the peculiar kind of noises heard by the patient, as resembling this or that well-known sound, should not, in my opinion, be accepted as a guiding symptom for the selection of an indicated internal remedy, although our materia medica is full of such erroneous indications. For it is a recognized fact that each patient's description of the noises heard by him is influenced largely by his personal experience or natural environment.

In offering clinical notes the majority of writers are apt to give only their successful cases, or those which tend to support some theory they are trying to defend. I am free to confess that I have had more failures than successes in the treatment of the general run of tinnitus aurium, and that I have no reason to feel very enthused over any one special line of treatment for all cases.

Clinical Cases.—If the noises depend on foreign bodies or inflammation in the external meatus, they will

cease when the cause is removed. Aside from the everyday recurring examples of this form of tinnitus aurium, an interesting case occurs to me.

A lady complained that whenever she was in a noisy place, or where there was much talking going on, she heard a rattling sound in the right ear. Examination revealed a small particle of cerumen on the lower posterior segment of the membrana tympani. Its removal brought immediate relief.

A patient complained of a constant simmering sound in the left ear, with occasional pain. The natural inference was that its cause was the usual otitis media catarrhalis. The hearing was normal, and the drumhead, while a little pinker than usual, seemed the same. The eustachian tubes were freely open. Closer inspection revealed a small, very sensitive eroded spot in the external meatus, on the inner third, nearly hidden from view by an abnormal curvature of the meatus. Local treatment remedied the trouble in a very few days.

Aspergilli may be easily overlooked by one not entirely familiar with its appearance. I have seen a number of cases of tinnitus aurium ended by the removal of the several forms of aspergilli.

The most frequent cause of tinnitus is, in my experience, associated with the different forms of otitis media catarrhalis. This is due not only to local tympanic congestion interfering with the normal arterial flow, but likewise, in many cases, to the extension of the irritation and pressure to the inner ear, or, as Fields of London puts it, due to the impairment of the "pressure equilibrium."

While most cases of otitis media catarrhalis have more or less tinnitus aurium as a complication, we frequently find marked cases with no noises whatever. Treatment which benefits the disease will usually lessen the noises, but I have seen exceptions to this also. I have experimented with all forms of treatment for this class of tinnitus, and am under the impression that more frequent improvement has followed the use of the properly selected internal

homeopathic remedy, combined with inflation of the middle ear and intra-tympanic medication through the eustachian catheter, than by any other method. The latest globe-nebulizer has an ingenious and useful attachment for this purpose.

In certain aggravated cases of tinnitus aurium, which resist the ordinary methods of treatment, perforation of the drumhead may be of great service, for it has been generally observed that there is usually not much tinnitus when the drumhead is perforated. This gives rise to the accepted explanation, that noises in the middle ear disease, with imperforate membrane, are due to the obstruction of the outward flow of the sound waves and consequent concentration and reverberation in the tympanic cavity.

Labyrinthine inflammation and exudation may not only cause great deafness, but may also be the source of aggravated vertigo and mental confusion, as well as all kinds of most distressing noises. This form of tinnitus is to me the most annoying and stubborn of all. Though in a few cases I have seen it improve, as if by magic, under internal remedies.

In a bad case of tinnitus, in a gentleman, following la grippe, every form of treatment failed to make the slightest impression on the high ringing sounds, which were continuous in the right ear. This was impatiently endured by him for over four months. It was finally cut short in one day by *calcareae carbon*. 13m, which I very skeptically gave, on the advice of a friend, in consultation.

In another case, with a similar history, with exudative otitis interna, galvanic electricity locally and hydrobromic acid 2d internally brought relief in a very short time.

It is in this class of cases that the familiar remedies, *silicea*, *calcareae carbonica*, *nux vomica*, *chenopodium*, *pulsatilla*, etc., are frequently of much use.

A patient complained of a ringing noise in his ears coming on every day about the same time, lasting about two hours. Associated with this case was first a little chilly sensation and then hot flushes and headache. It was

undoubtedly malarial in origin, and chin. arsen. made a speedy cure.

Tinnitus aurium may be the result of reflex irritation. I have seen it cease after the removal of enlarged turbinates; also after the removal of pressure points in deflected septum.

I removed twenty-four small polypi from the nose of an old lady sixty-five years old. It not only stopped noises in her ears, but cured an asthma of some years' standing.

The removal of the faucial tonsil has improved a number of cases of tinnitus aurium.

I know of two cases of troublesome noises in the head which were cured by rectal operations.

Constitutional poisons may be the cause of tinnitus. A patient of mine, a cigarette smoker, stopped smoking, by my advice, and thereby cured *himself* of attacks of vertigo and noises in the head which had resisted my efforts to remove.

It is a well-known fact that noises are at times heard in the head in anæmia. A number of cases of this nature have been remedied when the cause was removed.

While the above cases given do not by any means exhaust the forms of tinnitus aurium or describe all the treatments used, they will serve as types of the usual run of cases.

Why we do not hear the normal onrushing flow of blood through the arteries of the head and aural apparatus has always been to me an unexplained mystery. We know how sensitive the normal ear is to sounds in or about the ear. The slightest rubbing of the auricle, the crepitation sound which follows the rubbing of a few hairs between the fingers, illustrates this; and yet in normal conditions we are not conscious of the flow of blood through the jugular vein running just beneath the thin floor of the tympanic cavity, or of the internal carotid artery as it winds through the apex of the petrous bone. It is quite different, however, in abnormal states, for we do have venous murmurs from the jugular vein, and pulsations from the obstructed flow through the arteries. Pressure, con-

gestive or mechanical, may produce these pulse-like sounds. Aneurismal bruit, diminished caliber of the foramina giving exit to blood vessels, will do likewise ; and local arterial pressure, either from tumors or exudations, will do the same. Hence, when tinnitus aurium is produced by any of these last mentioned mechanical causes, neither local nor internal remedies can possibly be of service.

ADENOID VEGETATIONS OF THE NASO-PHARYNX.*

BY HERBERT W. HOYT, M. D., ROCHESTER, N. Y.

IN these days of rapid advancement in science the medical profession is not far behind. Physicians are not satisfied with taking disease as found and treating it, but there is a great desire to go farther and find the cause. This is very difficult, and in many cases an impossible matter; but by such knowledge one is better able to treat disease and feels surer of the ground on which he is working.

What are adenoid vegetations of the pharynx, and what part do they play in disturbing the human economy?

In the vault of the pharynx, out of sight unless examined with the throat mirror, directly in line with the floor of the nares, is an accumulation of glandular tissue more or less extensive. When normal in condition it is not easily seen and does not make itself known by any symptom. It is called Luska's, or the pharyngeal tonsil. It is similar in structure to the tissue of the faucial tonsils and the tissue on the base of the tongue called the lingual tonsils. Together these structures form a complete ring in the isthmus of the pharynx and naso-pharynx. Much theorizing has been indulged in regarding the function of these glandular tissues, but so far as is known they simply secrete a viscid mucus to assist the food in an easy transit through the esophagus. This mass of tissue in the naso-pharynx is in many cases found in a hypertrophied condition. In addition to this,

* *Hom. Med. Soc. Monroe Co., N. Y., 1897.*

in the condition called adenoids, the extra growth often extends further to the sides and down into the oro-pharynx.

Many authorities think the cause of this hypertrophy lies in repeated colds with their catarrhal secretions, the exanthemata, acute attacks of diphtheria, and throat inflammations. Others, with probably better ground, think this is merely a local manifestation of a constitutional dyscrasia. This seems very evident in some cases where a strumous aspect pervades the whole system. While hygienic surroundings have a marked influence on the reflex symptoms of this diseased condition, they have apparently very little to do with its ætiology.

The most common symptom of hypertrophy of the pharyngeal tonsil is that of obstructed nasal breathing to a greater or less extent. This causes mouth breathing with its train of results that cannot be painted in too black letters. The function of the nose is to warm and moisten the air before it reaches the lungs. Every physician knows what care is necessary in tracheotomy to keep the air in the room moist and too warm for the comfort of others, so that the bronchi and lungs shall not be shocked by air not prepared for them. In almost as great a degree is one endangered who breathes through the mouth alone, allowing cold and dry air to enter the chest. Then, too, air laden with bacilli, tubercular or otherwise, is strained in passing through the nose by the bristle-like hairs that stand guard in the anterior portion of the nostrils, and is much less likely to carry contagion to the sensitive lung tissue than when passing unmolested through the mouth. It is claimed that the mucous secretions of the nose are germicidal to a large degree, and thereby assist the hairs in the gates of the nares to rid the air of its microscopical life.

Lack of use always causes tissue change either as atrophy or deformity. Such is the case in the nasal cavity if air is not passing through it, giving the nasal mucous membranes their wonted occupation. The turbinated bodies will become congested and boggy; the septum will not develop, giving improper support to the nose, and will allow the

arch of the palate to become very narrow and deep, which in time does not give room for free development of the teeth. In a marked case of adenoids the middle third of the face will be shorter than the upper or lower thirds owing to lack of growth of this portion from non-use of the nares.

Cold air continually coming in contact with the gums and infantile teeth in mouth breathing interferes with their nutrition, causing deformity and early decay. Several papers could be written on the subject of mouth breathing, but as other points must be taken up this theme will be passed.

Another very diagnostic symptom of adenoids is the nasal tone in speaking, with inability to say clearly *n* or *ing*, but instead *ed* or *ig*.

Often there is deafness or earache. One author said that he always expected in a case of middle ear disease in a child to find adenoid vegetations in the naso-pharynx. This is usually due to the growth impinging on the pharyngeal orifices of the eustachian tubes, cutting off that free exchange of air in them caused by swallowing or other throat motions.

Recent investigations in deaf-mutism have shown that a large number of the cases are directly due to adenoids.

A child with adenoids continually takes cold and often there is a thick muco-purulent discharge abundant in nose and throat.

Reflexes galore are frequent, the more common being frontal headache, vertigo, enuresis, cough, convulsions, etc.

The most interesting feature in the study of adenoids is the relation they bear to the central nervous system as shown by lack of development and mental incapacity.

In embryonic life, it will be remembered, there are three divisions of the germinal tissue or blastoderm: namely, the epiblast, hypoblast, and mesoblast. Strange to say, these three divisions unite, having about equal importance, in the formation of the pharynx. Also, it will be remembered that in embryonic life there is in the infolding process a

structure called the noto-chord, which is closely allied to the primal spinal cord or neural canal. In the process of change the noto-chord disappears, with the exception of a small portion of the cephalic extremity, and this is in close relation to the point where the three blastodermic elements unite to form the pharynx. This upper extremity of the noto-chord forms the pituitary body situated under the cerebellum, and is in structure partly nerve tissue and partly cellular tissue of a similar variety to that found in the vault of the pharynx. In some dissections a connection has been found to have still remained between the pituitary body and Lusk's tonsil in the form of a fibrous cord. Originally there was a tubular connection, but usually all trace of it is gone after birth.

This co-relation between the tissues formed by the union of the three blastodermic membranes and this pituitary body, part brain, part gland, may be the solution of the profound influence that hypertrophy of the pharyngeal tonsil has on the nervous system. It certainly is a very interesting field for study.

Adenoids are diagnosed by the symptoms, together with digital examination and the use of the mirror. Usually the insertion of the index finger behind the soft palate will tell the story.

The treatment is either medical or surgical or both. The physicians of the predominant school are inclined to use surgical means only for the extirpation of the diseased tissue, and then consider their duty done. On the other hand some think an instrument should not be used in any case. A too conservative method will result in allowing tissue changes to take place, causing permanent injury, while waiting for medicines to act. If there is enough redundant tissue to cause mouth breathing or deafness it seems better to use surgical measures, followed by constitutional remedies such as baryta carb., calc. carb., calc. phos., sulphur, silicea, or mercury. If the naso-pharynx is only slightly obstructed, but enough to cause a child to continually take cold or have various reflexes, remedies

ought to come in first, and if marked improvement is not shown in six or nine months surgical means should not be put off longer. In some of the foreign countries it is customary to forcibly hold the child and with a sweep or two of a curette to clear out the pharynx, or at least try to. This seems to the writer to be a cruel procedure to say the least. No one can in a single sweep clear the mass of adenoid tissue from a child and have a smooth surface. If the operation is to be done at all it ought to be done well. At the present day chloroform or ether is not so much a shock to any child as to forcibly clear out his throat without the use of an anæsthetic, however quickly done. The reaction from the operation is usually very slight.

It is only a few years since Dr. Meyer of Copenhagen announced to the medical world the result of his study on this subject, and brought to public notice the prevalence of the presence of adenoids. Every year more interest is being taken in this particular study, and some advocate extreme measures regarding it. One writer in a western city recently said in a magazine article, that every child ought, before entering school, to be examined by a competent physician as to the presence or absence of adenoids, or at least, that the teachers ought to be so instructed that they could detect their presence and report such cases to the proper authorities.

One investigator said that in every case of malignant diphtheria he had ever seen or could learn of, there was either hypertrophy of the faucial or pharyngeal tonsils. Such being the case it would be possible to largely prevent serious results in diphtheria by early attention to the children's throats.

Here it seems appropriate to say that it ought to be the duty of every physician to instruct his patients to teach the children to show their throats. Many a child has never been asked to open his mouth, until some soreness in the throat required it, and then fear of pain would overcome any persuasion.

Many cases might be cited to illustrate the ideas in this

paper, but only one will be given to bring out the points, deafness from adenoids, and the necessity of a careful and thorough operation :

Johnnie W., age three years, had been very deaf for eight months ; had learned to say only a very few words when deafness was noticed ; breathed through mouth when asleep, with heavy snoring sound ; nervous, and poor eater. He was referred by the family physician to a specialist in nose and throat diseases. Diagnosis, adenoids. The child was held forcibly in his father's lap and a curette quickly passed into the naso-pharynx ; with one sweep, the physician succeeded in removing a small portion of tissue and in frightening the child very much. After this some benefit in breathing was noticed, but none in hearing. The Politzer bag was used frequently but no benefit followed.

The child was brought to the dispensary to be examined and an opinion asked of the writer. The same diagnosis was given but a more complete operation was advised. A few days later, under chloroform anæsthesia, considerable adenoid tissue was removed by the forceps and curette from the side of the naso-pharynx near the eustachian orifices. Slight reaction followed. Sprays of listerine and frequent inflations with the Politzer bag followed with calc. phos. 3x internally. In ten days the boy could hear a voice slightly raised and in three weeks could hear any ordinary voice. He has rapidly learned words, and now is as happy and well a boy as any one need to see.

TINNITUS AURIUM. CLINICAL CASES.

BY C. GURNEE FELLOWS, M. D., CHICAGO.

FOR the sake of discussion, I will report a few cases of tinnitus aurium, some of which have been cured or relieved, and others left entirely unbenefited. Of those relieved, I will present cases suffering with a variety of diseases, and especially, for those which I have been unable to help, would I ask for the experience of others, so that I may do better in the future.

The climate of Chicago and the Lake region is one particularly responsible for inflammations of the middle ear, and many chronic cases present themselves. I have about fifteen cases, which are so similar that a report of any one will suffice to give my method of treatment and the results obtained. They are cases of tinnitus aurium, presenting the symptoms of simple chronic inflammation of the middle ear, and the treatment of that disease has been the means of relieving those and other distressing results.

CASE I. Mrs. G., aged thirty, has complained of a progressive deafness for about fifteen years. Has received treatment from the hands of specialists, but principally such as comes from the prescription of homeopathic remedies, with moderate relief, but a return to the old condition, and with no permanent improvement. Examination revealed thickened membrane, prominent short process, eustachian tubes permeable by means of the catheter, but not by politzerization. Nasal examination showed chronic hypertrophic inflammation of the turbinates and the nasopharynx. Little was promised because of previous treatment, but insistence was made that prompt treatment for two months

must be tried as an experiment. As in all such cases, I believe that the condition of the nose and naso-pharynx is, in a great measure, responsible, and I treat those conditions by the regulation treatment, adding such aural treatment as seems best. In this case, daily cleansing with antiseptic alkaline sprays was advised and followed up. A mild hypertrophy was treated by tri-chlor-acetic acid cauterizations, and the catheter used three times a week with the air-bag, and the addition of medicated vapors. In this connection, I wish to explain my mode of application. I have in my office, and have used with good results, a multiple comminuter, connected with compressed air. After passing the catheter and using the air-bag, to be sure that my tube is in place, I connect the comminuter by means of a rubber tube directly with the catheter, allowing a continuous stream of medicated vapor to pass into the middle ear, turning on more and more pressure as occasion demands. The medications used are menthol, camphor, benzoin, or ether, according to indications, and, as a rule, the relief is fairly prompt, but the duration varies from a short time to a longer period. My rule for the frequency of treatment is to apply it as soon as the tinnitus and fullness return, and to diminish it as quickly as results seem more permanent. In the case of Mrs. G., continuous treatment for two months improved the hearing and caused all noises to cease, and the comparatively permanent results remain after two years.

CASE II. Mrs. N., aged sixty, complained alone of the tinnitus in both ears, with hearing comparatively little affected: Moderate catarrhal inflammation of the nose, pharynx, and eustachian tube existed. A simple treatment was followed out but with no good results. I then used the same treatment with the addition of vibratory massage, electricity, and internal remedies, but nothing that I could do produced any amelioration, and the patient ceased treatment in consequence.

In this connection I may say that I have used the phonograph and vibrometer, but have not seen such results in severe cases that would lead me to count upon it more than upon regular treatment. I am now using vibratory massage and electricity, by means of an apparatus which I had made upon the lines of one recently described by Dr. King of Washington. Mine is made of a stethoscope, connected

with a telephone receiver, connected with the faradic coil to which I attach a buzzer, and thus procure vibration and noise similar to that of the vibrometer, and vary the pitch by means of a thumb screw; galvanic and faradic electricity to be applied at will. In some cases I find improvement and in others no particular improvement. In fifteen cases only I have to report good results.

CASE III. Mr. W., aged seventy-three, diagnosis simple chronic inflammation of the middle ear and slight impairment of hearing, distressing and continuous tinnitus for fifteen years. Simple treatment being unavailing, I used the compressed air applied by means of an apparatus suggested by Dr. Beebe of Milwaukee, using it faithfully every day for two months with very fair improvement. So that I believe that success was due to the application of and consequent vibration induced by compressed air to the external canals and drum membrane.

Another class of cases have presented themselves in which tinnitus was the distressing symptom, which I believe has been due, in a great measure, to the dampness of the climate, and such cases have improved more by the administration of internal remedies or by change of climate than by local treatment. Such a one is Mrs. K., who noticed only moderate improvement after the use of the air-douche, catheter, and other local, intra-nasal treatment, but who improved much after a summer in Europe, gaining thus change of air by the voyage and travel.

I have a number of uncured cases to report, among them Mr. C., who had distressing tinnitus in one ear only, and who heard music in discords, in which the use of the catheter, air-bag, internal remedies, change of climate all failed to produce any amelioration, and he has settled down to accept the condition, having had the advantage of advice from numberless specialists, both in the old school and the new.

Another class of cases due to intra-nasal obstruction: I cannot report the brilliant results shown by some individual cases published in the journals.

Mrs. B., with chronic middle ear catarrh and tinnitus aurium, had a septal deflection of one side of the nose, and on the same side of the distressing ear. She was happily relieved by the removal of the septal obstruction and the ordinary following treatment. But Mr. D., a persistent mouth breather, was not improved by a similar treatment. Mr. M., deafness and tinnitus, left ear only, slight chronic suppuration, nasal stenosis from a septal spur, not relieved by previous aural treatment, was cured by removal of the septal spur, and the discovery of polypi posterior to that spur.

I have two cases to report in which furunculosis of the external auditory canal was the cause of a distressing tinnitus, and relieved by its cure. Local treatment, incision, ointments were tried in vain, but ferrum pic. internally, from the 3d to the 6th and the 200th, was the means of producing the final good results. I suppose it is needless to report the cases due to the impaction of cerumen or the presence of post-nasal adenoids, but I have many such which are uniformly successful following a treatment of the cause.

One case of reflex tinnitus is particularly interesting: Treatment direct to the ear and nose had previously been unsuccessful, but noting the fact that aggravations occurred monthly, and always with the approach and continuance of menstruation, a happy prescription of sepia was followed by permanent relief. My method of treatment is, as a rule, to apply both local and internal remedies at the same time. So that I am not always sure of the action of a remedy, but the remedies that have served me best, and that I have proven by repeated experience to be of value in such cases of tinnitus, are picric acid, ferrum pic., salicylic acid, china, plantago, hyoscyamus, and sepia.

A CLINICAL CASE: ILLUSTRATING THE USE OF NITRIC ACID IN NASAL OBSTRUCTION.*

BY C. F. STERLING, M. D., DETROIT, MICH.

THE subject assigned me in this bureau, and the title in the programme, reads: "A Clinical Case." This, however, must simply serve as the text for the few things I have to say, my real object being the use of nitric acid as a local application in certain troubles of the nasal cavities. Therefore I will start with the story of a little case that I had some years ago, that I may comply with the established order of the programme, and get in my small preachment afterward.

Sometime in 1888 a little girl was brought to me with the history of nasal obstruction, and the general group of phenomena attendant upon this class of cases: mouth breathing, dry mucous membrane, etc.

Nasal polypi were at the bottom of the trouble. "Well, that's simple," I hear some of you say, "why did you not twist them out with forceps, cut them out with the snare, cold or electric, or some such short and expeditious way?" Precisely, quite easy sometimes, especially if you have one or two only, well defined, plenty of room, and a tractable, intelligent adult patient. But in this case I had a timid child, a shapeless mass, with hardly any definite beginning or ending, no spare room in which to work, and parents who were vehemently opposed to instrumental procedures. In fact, they had consulted Dr. Shurly, one of the most distinguished specialists in the country, and had emphatically refused to allow him to operate.

* American Institute, June, 1897.

They had come to me to see if I could not give the child some form of treatment that would obviate the necessity of torsion or traction. I debated the case with myself for a few moments, and the inspiration came like a flash, "Why not cut that mass away gradually by c. p. nitric acid? you can regulate the application, you can render it painless by cocaine, and when through, you are through, while by mechanical evulsion, the stump or root must still be treated by some escharotic."

So I said, "The wire is undoubtedly the simpler and quicker method, but it can be done another way without discomfort to the child, either real or apparent." So they desired me to undertake the case, which I did, with a perfectly satisfactory result. The nasal passages were completely cleared, removing all unpleasant symptoms, and bringing back the child to so thoroughly a normal condition that she has required no treatment for even catarrhal symptoms until this past winter, when an acute coryza required a few sprays for a week or two.

So much for my compliance with the programme. Now I wish to make a word or two of application, as the parsons say.

Up to this time I had never heard of nitric acid, c. p., as an agent to use within the nose. Chromic acid, glacial acetic, argentic nitric, etc., were the recognized chemical escharotics. My use of it was so satisfactory that I determined to experiment with it in cases that seemed suitable, of which during the past nine years quite a number have come under my observation.

The advantages I have found in using it are, ease and simplicity of application, the complete control of its effect, its thoroughness in result, and its painlessness. Besides these, it is always ready at hand, requiring no prolonged preparation, and no unpleasant after effects.

Of course, if used carelessly and without judgment, consequences more or less disastrous may ensue, but the physician who cannot use his tools with prudence and discretion had better cease practicing medicine.

The method of application is very simple. I take a small wire probe and wrap a film of cotton about its end, more or less, according to the effect that I wish to produce. Then after dipping this in the acid, I touch with it the points that I desire, the nostrils being dilated of course with a suitable speculum. Previous to the application the mucous membrane of the nostrils has been made anæsthetic with cocaine. Immediately before using the acid, I instruct the patient to draw a long breath and hold it. This is to prevent the introduction of the fumes into the respiratory passages.

Just as I withdraw the probe, I say, "Now, breathe out." This being done all irritating effects of the vapor are prevented.

Then I take (after a suitable time has elapsed, either at once or in a minute or two) an alkaline solution, generally Seiler's, and spray the parts thoroughly. This neutralizes any further effect.

In one, two, or three days I find a slough ready to come away. In some cases it has already been shed, and I find a marked diminution of the growth. I repeat at such intervals as long as necessary.

The class of cases in which I have found it applicable are such as the one related, small mucoid hypertrophies, tonsils which are irritable and have offensive secreting crypts, etc., etc.

I have never yet experienced any ill results from too extensive destruction of the mucous membrane, eventuating in atrophy.

TOTAL AND BILATERAL RESECTION OF THE CERVICAL SYMPATHETIC (TREATMENT OF EXOPHTHALMIC GOITRE).*

BY TH. JONNESCO,

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TOTAL and bilateral resection of the cervical sympathetic has never, up to the present time, been practiced either upon man or, as far as I know, upon animals. It seems then that the operation that I have lately had occasion to perform, six times in succession, is a new one. The sixth case is still too recent to speak positively about. The other cases may be divided as follows: Two cases of Basedow's disease (exophthalmic goitre), two of essential epilepsy, and a little girl choreic and epileptic at the same time.

We will study successively the reasons that led me to attempt this new operation, the technique, the results obtained, and the indications for the operation.

I.

Two classes of facts have suggested to me the idea of undertaking this method of intervention which, *a priori*, would appear to be condemned by the known physiological data :

1. The attempts at section and partial resection of the cervical sympathetic.

In epileptics, Alexander, in 1889, practiced the complete and bilateral resection of the superior cervical ganglion ;

* *Annales d'Oculistique*, March, 1897.

Kummel attempted unilateral resection of the superior cervical ganglion; in 1892, Vacksh made: (1) A ligature *en masse* of the vertebral artery and vein, before their entrance into the bony canal, in order to tie at the same time the vertebral sympathetic plexus which accompanies them; (2) a section of the sympathetic trunk below the superior cervical ganglion. In 1893, Bogdanick made a resection of the lesser cervical ganglion, or, if this did not suffice, an excision of that part of the sympathetic trunk which appears at the level of the usual location of the ganglion. Chipault,* from whom we have borrowed these indications, says: "These operations, especially the first, may be considered easy of performance; on the other hand they have, aside from the face, induced none of the trophic and vasomotor disturbances that might be expected. After twenty-four extirpations of both superior cervical ganglia, Alexander makes note of no accident of this nature which would restrain the surgeon.

"At the utmost," says he, "when the operation is performed at different times, there is noted upon the side first operated a slight contraction of the pupil and a very limited dropping of the lid; both become inappreciable when both sides are operated, even when the patient is compared with a normal subject. There are no trophic troubles of the eye, no modifications of the facial expression, nor of the pulse, nor the cardiac junction."

Kummel, after a unilateral extirpation of the superior cervical ganglion, makes note only of a contraction of the pupil and hypersecretion of the nasal mucous membrane on the side operated.

Vacksh makes note of the same phenomena after section in two cases, according to his method, of the vertebral plexus and the trunk of the nerve below the inferior ganglion. "In short," adds Chipault, "operations upon the cervical sympathetic do not appear to be without a good effect upon the progress of epilepsy, and, if the cases reported by Kummel, Vacksh, and Bogdanick are not suffi-

* Chipault (*Chir. opérat. du système nerveux*, T. ii. 1895, p. 309).

ciently numerous, nor has a long enough time elapsed to make the results of value, the same cannot be said of those operated by Alexander. 'Among my twenty-four cases,' says he, 'six must be considered cured; ten ameliorated, especially from the mental point of view; four remained stationary, and none were aggravated; two died after the operation but not as a direct result of it.' That is then twenty-five per cent. of cures, and some very encouraging, for a goodly number of these cured cases, if they had been reported according to the prognostic classification of Gowin, would have been found in the very worst condition."

Chipault closes by saying that it seems that these conclusions merit confidence, and future attempts in the line indicated are absolutely justified.

Jaboulay (of Lyons), in 1895, undertook section of the cervical sympathetic in an epileptic with the view of modifying the cerebral circulation.

In 1896* the same surgeon practiced, in a case of exophthalmic goitre, the isolation of the lesser cervical ganglion by dividing four or five efferent branches after he had severed the trunk of the sympathetic below the ganglion on the right and on the left. He obtained a very notable amelioration of the symptoms; the exophthalmia completely disappeared; the tachycardia diminished from 152 pulsations to 120, and then to 100; the goitre diminished; the circumference of the neck, 40 centimeters before the operation, fell to 37 centimeters afterward; the visual acuteness returned to normal; the palpitation and trembling have not returned.

2. Lesions of the cervical sympathetic in epileptics whose nervous cord presents an intense hyperæmia, and which exist in the same way in Basedow's disease.

The origin of vascular and nervous troubles in exophthalmic goitre has been located by a great many authors in the great cervical sympathetic. Autopsies have shown two

* Jaboulay, *Lyon Méd.*, No. 12, p. 389; No. 22, p. 150; No. 30, p. 419; No. 31, p. 469.

orders of lesions in this nerve, some extending upon the trunk even to the sympathetic, the others upon the cervical ganglia, preferably the lower and inferior ganglia; atrophy of the nerve cells, sometimes simple, sometimes accompanied by consecutive peripheral or interstitial proliferation.*

These lesions do not appear to be constant; certain authors even denying their occurrence.†

Guided by these trials of partial extirpation and section of the cervical sympathetic—attempts which have given insufficient therapeutic results—and by the constant lesions of the nerve, I have been led to make a more radical operation, consisting of the complete ablation of that portion of the cervical sympathetic which seems to be, at least as far as concerns exophthalmic goitre, the principal cause of the symptoms which characterize this affection. It is only after having established the harmlessness of this new method in the case of exophthalmic goitre that I have undertaken the total and bilateral resection of the cervical sympathetic in epileptics.

II.

The technique of the operation may be divided into the following steps:

I. The cutaneous incision. This commences behind the posterior border of the mastoid apophysis and is carried along the posterior border of the sterno-mastoid muscle, descending upon the anterior face of the clavicle. Once through the skin, the superficial muscle appears and is cut. Below this muscle, and toward the inferior border of the incision, is found the external jugular vein and the branches of the superficial flexors. After placing two ligatures on this vein it is severed, as also the nervous branches, of which I shall speak under the next heading.

* (Recklinghausen, Biemer, Lanceveaux and Peter, Geissel, Virchow, Reith, Archibald, Beveridge, McDonnel and Moore, U. Pepper, Shingleton, Smith, Kalinbero.)

† Paul, Fournier and Ollivier, Rabessac, Wilks, Henri Barth.

2. The detachment of the posterior border of the sterno-mastoid. In order to accomplish this, one is forced, in spite of the claims of Alexander, to sever the branches of the cervical flexors and the external branch of the spinal—a proceeding which has never been followed by any inconvenience. This done, the cellular tissue is separated along the posterior border of the sterno-mastoid, either with a grooved director, or, better still, with the fingers. This is easily done in the inferior portion of the operative field, but is difficult in the superior portion. At this point it is also often necessary to use the bistoury. Toward the inferior extremity of the incision, near the clavicle, the omohyoid muscle is encountered; usually it is sufficient to leave it to a retractor; sometimes, however, it is necessary to cut through it to give more room. Once the sterno-mastoid muscle is disengaged, two Farabeuf retractors are applied, one at the superior extremity, the other at the inferior extremity of the incision, with which to raise and draw aside this muscle.

3. The search for the sympathetic trunk. The nerve trunk should be sought for in the middle of the operative field. There the sterno-mastoid muscle and the vessels of the neck are more easily detached from the prevertebral muscles. The retractors, strongly drawn by the assistant, bring into view, inside and in front, not only the sterno-mastoid, but the vessels of the neck and the pneumogastric. Often, in eight cases out of ten, the sympathetic trunk is raised up by the retractors, and is found included in the deep part of the posterior wall of the sheath of the cervical vessels. In some cases, four out of twelve, this rests upon the vertebral column, deep in the prevertebral aponeurosis.

In the first case the nerve trunk should be sought for in the mass raised up by the retractors; in the second, it should be looked for on the vertebral wall. In either case the use of the director will be sufficient to detach the aponeurotic sheath of the nerve trunk and permit it to be seen. For the rest it is easy to distinguish this nerve from those

which surround it. It would not be confused with the pneumogastric unless the two ran together, nor with the phrenic when the sympathetic rests against the vertebral column. Once the trunk is found and disengaged for a certain distance, we proceed to separate the superior cervical ganglion, which constitutes the fourth step in the operation.

4. Picking up the nerve trunk with a toothed forceps, the cellular tissue surrounding it is torn apart from below upward, exposing it little by little, toward the base of the skull. Reaching in this way the superior cervical ganglion, which may be known by its size, we proceed toward its superior border and separate its anterior face from the jugular, the spleno-gastric nerve, and the carotid. This separation is generally easy.

Having thus disengaged it in front, we proceed to its deep face and free it as far as possible. There is nothing to fear in pinching forcibly the inferior extremity of this ganglion during these maneuvers of detachment, for it is very resistant and has never been known to give way under the drawing of the forceps. This stage is often difficult, because the muscular wound is not extensive enough to permit the disengagement of the ganglion as far as its superior extremity. There is nothing to fear in cutting with the scissors or bistoury the occipital fascicle of the sterno-mastoid in order to enlarge the field of operation which has been created between the splenius on the one side and the sterno-mastoid, cut in this manner, on the other.

Besides this, the retractor ought to be placed very high in the superior angle of the wound, and in such a way that it will raise up altogether the sterno-mastoid and the vasculo-nervous mass of the neck. In spite of all these precautions, it is sometimes difficult, if not impossible, to disengage the cervical ganglion throughout its entire length with the director. Then it is necessary to continue the operation with the aid of the index finger passed well beneath the ganglion and carried as far as the base of the cranium. Only when we are sure that the ganglion is

completely separated from the nerves and muscles that surround it may we proceed to its complete liberation. To accomplish this the inferior extremity of the ganglion is grasped with the forceps and drawn forcibly upward and from within outward; the efferent as well as the afferent branches of the ganglion are then severed with a very fine pair of scissors. Among the afferent branches we ought to mention a large one, often a very large one, going to the second cervical. In spite of its size, there need be no hesitation in dividing it in order to completely free the ganglion. This done, and after becoming assured that the ganglion is entirely liberated, the cord passing toward the skull is severed. In order to do this and avoid all wounding of the nerves surrounding it (pneumogastric, glossopharyngeal, great spinal hypoglossal), the internal carotid and the jugular, it is necessary to use a pair of fine curved scissors and divide the cord from before backward, and from above downward. The liberation and resection of the superior cervical ganglion finished, we proceed to the resection of the inferior median ganglion, which constitutes the fifth stage of the operation.

But I should call attention to some difficulties and incidents which may be encountered in the resection of the superior cervical ganglion. Sometimes, while enlarging the upper part of the operative field, there are found one or two small veins which may give rise to an abundant hemorrhage. This may be arrested by a few twists of the forceps. In scrofulous infants, as has happened to me in two cases, this stage of the operation may be prolonged and rendered difficult by the presence of a number of lymphatic ganglia, which must be removed, one by one, to clear the field of operation.

5. Resection of the median and inferior cervical ganglia. To reach the median cervical ganglion, and particularly the inferior, it will be necessary to place the retractor in the inferior angle of the wound so as to embrace the omo-hyoid and the sterno-mastoid muscles. Frequently, in order to give more room, we will be forced to sever some

of the clavicular fascicles of the latter muscle, and even of the omo-hyoid. It is well to realize that our work will have to be done in a deep hole where the parts will never be very distinct. Having separated the cellular tissue which fills the field at this point, and exerting strong traction upon that part of the sympathetic cord already disengaged, the nervous plexus which infolds the inferior thyroid artery is seen. It is not indispensable to reach the tubercles of the transverse mastoid apophysis of the sixth vertebra in order to find the thyroid artery and the network of nerves surrounding it. Sometimes, indeed often, there is seen at this point no true ganglion, such as is represented in treatises on anatomy; there is found only the sympathetic trunk and the numerous filaments that arise from it. When this occurs the filaments are severed, one by one, with the scissors, and the nerve or the ganglion, if it is present, is disengaged from the thyroid artery with the director.

We must remember that sometimes, as has happened to me in two cases, this artery is very friable and may be torn by the director in these endeavors to disengage the nerve trunk. The ligation of this artery should occasion no inconvenience, and in goitre particularly there are good indications for tying it deliberately. We then proceed to the liberation and resection of the inferior cervical ganglion. Guided by the tubercle of the sixth cervical vertebra, we easily discover the vertebral vessels, the great vein, often enormous, which covers the artery, and the ganglion situated behind it. It is necessary, first of all, to free the vertebral vein or veins, to draw them outward and upward with a retractor, then to find the vertebral artery, draw it from its place, and hold it with the same retractor. It must be remembered that in this stage of the operation it is not rare to tear a vertebral vein, causing an abundant hemorrhage, which blinds the field of operation. Do not hesitate to tie or twist these veins in order to clear the field. Then, with the finger, try to disengage these veins from the osteo-mem-

branous gutter when they are found. This procedure should be carried on with the finger rather than with the director, it being easier, and accomplished with less risk of wounding the veins, or even of opening the pleural sac. I should say that in two cases this latter accident occurred, but forceps and a ligature closed the opening without any trouble. The operative field, enlarged in this way, allows us to proceed to the total or partial resection of the inferior cervical ganglion. I say total or partial, because in a number of cases it is impossible to resect this ganglion completely. It is not rare, indeed, to find a fusion with the first or even with the second thoracic ganglion, forming with the three an enormous ganglionic mass of 3 to 4 centimeters, which is prolonged far into the thorax. In other cases the ganglion the size of a small hazelnut is found applied to the neck of the first rib and the vertebral body, being held in place by the strong afferent and efferent branches which hold it there. In order to resect it, it is necessary, first of all, to try to raise it up by taking hold of the sympathetic trunk lying upon it, then, with the director, disengaging the anterior surface, afterward the lower surface and the different afferent and efferent branches. When this detachment is sufficiently advanced and when the different nervous branches can be seen well, the afferent and efferent branches of the ganglion are severed, one by one, with a fine curved scissors. In this way the vertebral nerve as well as the cardiac branches will be cut.

Among these last I should note particularly an important and relatively voluminous branch which leaves the sympathetic trunk in front of the ganglion and proceeds directly toward the cardiac plexus. It must not be confounded with the trunk of the sympathetic, and, guided by it, seek the inferior cervical sympathetic; this false route will cause the loss of precious time. The resection of the inferior cervical ganglion is often nearly impossible. Frivable, surrounded by veins which inundate the field of operation, one is forced to let it remain in place; but even in this case one ought, as I have done many times, to sever

the afferent cardiac branches and the vertebral nerve. In the other case it is the volume and the union of the first and second thoracic ganglia which renders its total extirpation impossible. We must then be content with removing a segment and dividing the vertebral nerve and as many branches as possible. This stage of the operation is certainly the most difficult and one that holds the greatest number of surprises for the operator. It has happened to me in two cases to have a comparatively abundant hemorrhage, due to a wound of the great confluent retroclavicular veins.

In another case the sub-clavicular artery mounted so high that it was found in contact with the ganglion that I had resected. It is easy to understand the danger if this fact had been ignored. However much it may be, I would put on their guard those who would undertake this resection against this venous hemorrhage, abundant enough to frighten the operator, but which is easily arrested by forceps and ligature. As a preparatory step I have, in two cases, applied ligatures to the vertebral arteries and veins, not to avoid the wounding of these vessels, but to modify still more the encephalic circulation. Having finished the resection of the cervical cord, we proceed to ligate some of the vessels, less important than those that have interested us during the progress of the operation, and then begin the suturing in the following manner :

First, suture the posterior border of the sterno-mastoid to the splenius above and to the subcutaneous tissue through the rest of the wound. This assures a perfect hemostasis. Then suture the cutaneous wound with the intradermic suture. In this way the enormous wound often becomes almost invisible, and from an æsthetic point of view the traces of the operation are almost *nil*. With respect to drainage, it is often unnecessary. In two cases, and on one side only, I have been forced, on account of a slight bloody oozing, to use the Mikonlitch drainage, rather with a view to hemostasis. The drainage was removed the following day, however, and the little opening

rapidly united. I should say here, that if drainage is necessary, the opening ought to be not at the inferior extremity of the wound, upon the clavicle, but a little above this point, in order not to leave the bone bare.

Such is the technique of which I have availed myself, but in three cases out of six I did not remove the inferior cervical ganglion, contenting myself with the section of its efferent branches. I would also add, that in all my cases I have performed at the same operation the resection of both cervical sympathetics. With regard to the convalescence, it has been very simple. In all cases the wound healed by first intention, and there were no complications.

The duration of the operation is variable. I have resected the sympathetic of one side in three-quarters of an hour, while on the other side the operation lasted but fifteen minutes. All depends upon the number of vessels and especially the extent of adhesion of the inferior cervical ganglion, the detachment and excision of which is often, as I have said, very laborious. Be that as it may, I am able to affirm that it is a very delicate operation which demands a great deal of patience, but which may on the whole be regarded as easy for those who are not ignorant of the important anatomical details of so complex a region as that operated upon. This is true especially of the deep pit, almost intra-thoracic, into which one must go to reach the inferior cervical ganglion. Before closing the operative technique I should describe in a few words the phenomena observed during the resection of the nerve and immediately after. In every case the resection of the superior cervical ganglion was accompanied by a contraction of the corresponding pupil, congestion of the face sometimes pronounced, a little lachrymation, and an abundant secretion of saliva. All these phenomena, however, disappeared rapidly, and in a short time after the operation all returned to the normal state, and I can say that nothing remained to indicate the absence of the cervical sympathetic.

III.

I have performed this operation in the following cases, of which I shall give a brief *résumé* :

CASE I. *Exophthalmic goitre*.—Two cases. (a) E. P., thirty years of age, widow. Beginning of the disease dates back two months. Increase in neck, slight trembling, dysphonia. Entered in the hospital August 12, 1896. There was then apparent a beginning exophthalmia more pronounced in the left eye than in the right, visual acuteness normal. Examination of the eyes by Dr. Hugel shows the following: Absence of the sign of Von Graefe, the lids follow the natural motion of objects up and down. The fundus of the eye shows the disk of the optic nerve more injected than normal, the veins more serpentine, especially in the left; slight pulsation of the retinal arteries; insufficiency of the rectus internus amounting to 40°. The thyroid body increased in volume, especially the right lobe. The circumference of the neck at this level is 37 centimeters; neither pulsation nor souffle in the thyroid body. Pulsation of the carotids, the voice altered (slight dysphonia), pharyngeal reflex lost, the heart beats irregularly, the pulse a little frequent, slight trembling of the hands.

Operation August 17, bilateral resection of the cervical sympathetic cord, without the inferior cervical ganglion, no drainage. After operation; uncomfortable deglutition; voice slightly hoarse; crowing cough; pulse accelerated (120 per minute); union of the wound by first intention. During the following days these phenomena disappeared. The exophthalmos has completely gone. The goitre is beginning to diminish.

On the 15th of October the patient returned, presenting the following symptoms: circumference of neck 35 centimeters, goitre sensibly diminished; exophthalmos completely disappeared; more trembling; slight difficulty in breathing after great efforts; pulse varying between 120 and 110. General condition: The *facies* entirely changed, the bloatedness of the face and neck entirely gone.

(b) S. E., sixteen years old, scrofulous. Commencement of the disease in the spring, during my own service, when I removed from him some tubercular cervical glands. Exophthal-

mos first, then goitre. On his entrance to the hospital, August 30, the following condition was presented: Exophthalmos very pronounced, goitre well marked, circumference of the neck at this level 33 centimeters, both lobes of the thyroid body equally developed. Heart beats accelerated, 110 pulsations per minute. Slight trembling. Examination of the fundus of the eye shows nothing abnormal (Dr. Fisher). Slight insufficiency of the internal rectus.

Operation September 2. Bilateral resection of the cervical sympathetic rendered laborious by the presence of the old cicatrix and by lymphatic glands, numerous and well developed; no resection of the inferior cervical ganglion. No drainage. Recovery uneventful. Union by first intention; exophthalmos diminished rapidly and very sensibly, pulse 108.

Returned October 15. The goitre has diminished; circumference of the neck 31 centimeters; exophthalmos almost entirely disappeared, the *facies* profoundly modified, generally condition excellent.

CASE II. *Epileptic*. (a) C. S., a youth of nineteen years. Slight attacks during early infancy. During the past seven years the attacks have become more intense, accompanied by loss of consciousness, contractions, falling, turgescence of the veins of the neck, etc., all the characteristics of the *grand mal* of epilepsy, with very transient loss of consciousness during the attacks. The attacks were frequent, every five days or less.

Entered September 22. Operation the 27th. Bilateral resection of the cervical sympathetic with section of the branches of the cervical ganglia without resection of the inferior ganglion. No drainage. Convalescence most simple. No attack up to the 15th of October. The prostrations and depression of spirits from which the patient has suffered have completely disappeared. Pulse between 118 and 82.

(b) C. B., a little girl of twelve years. Chorea and hystero-epilepsy. The affection began six years ago. Has an attack of hystero-epilepsy every eight days and sometimes two in twenty-four hours. Disordered movements of the upper and lower limbs, especially when anyone is looking. Pharyngeal and patellar reflex normal, the pupils react. Entered October 2. Operation the 3d. Bilateral resection of the cervical sympathetic, on the left including the inferior ganglion, on the right without it.

Bilateral drainage. Recovery uneventful. Pulse accelerated, 108 to 114. Up to October 15, no attack. The choreic movement of the limbs almost entirely gone.

(c) L. H. A man, thirty years of age. True epilepsy. The disease began seventeen years ago. The attacks, rare at first, now very frequent (several times a day), having the characteristics of the *grand mal* of epilepsy.

Entered in the hospital October 9. Operation the 10th. Bilateral resection of the cervical sympathetic, without the inferior ganglion on the right, with it on the left. Ligature of the vertebral artery and veins on both sides. Drainage on the left side. Recovery from the operation simple. No attack from the time of the operation up to October 15.

IV.

From this it may be seen that the results of this new method, both operative and therapeutic, are most encouraging. From an operative point of view, these methods prove to us that we may with impunity remove the entire cervical sympathetic without causing trouble in the organs which it innervates. This fact, which is contrary to physiological ideas, seems to me of capital importance. This explains why, in spite of all my researches, I have never been able to find, in all the different treatises and memoirs on physiology that I have consulted, any experiment of this nature made upon animals. Another fact, which from this point of view is very important, is that the tachycardia instead of diminishing after the operation appears on the contrary to increase. Moreover even in epileptics I have observed an augmentation of the pulse after resection of the cervical sympathetic. The only explanation of this fact that I have been able to give is the following :

The traumatism of the cardiac fibers caused by the resection of the cervical sympathetic might influence the ganglia of cardiac and intracardiac plexuses which store up a certain dynamic force whose influence would be to increase the contractions of the cardiac muscle, whence the frequency of the heart beat and the acceleration of the pulse. Perhaps

there is also another factor that plays a part in explaining this frequency. This is the concomitant section of the cardiac fibers of the pneumogastric which are joined with those arising from the inferior cervical ganglion. Whatever the explanation the fact is undeniable, and I shall take great care to see for how long a time this extreme frequency of the cardiac beats will be continued. From a therapeutic point of view I can give the results only up to a comparatively recent date. For the time being it is incontestible that the result in patients suffering from Basedow's disease is more than could be hoped; the disappearance of the exophthalmos and the diminution of the goitre are very rapid and very marked, and, up to the present time, the progress is emphasized to such an extent that it must be presumed that more definite therapeutic results will be of the best. As to epileptics whom I have deliberately operated in this manner, removing the sympathetic in one, the sympathetic with ligature of the vertebral arteries in another, the therapeutic result is up to the present time absolutely perfect. I do not know how long it will last, as for this time alone will tell.

Again, in the little choreic and hystero-epileptic, up to to-day my operation seems to have had an excellent result; but here, in particular, I should make a reservation for the future.

Finally, I believe the following conclusions have been established: 1. That the cervical sympathetic may be resected entirely and on both sides without fear of ultimate trouble. 2. That this operation, without being easy, may always be undertaken. 3. In exophthalmic goitre, in which the trouble seems to be located especially if not entirely in the cervical sympathetic, the bilateral resection of this nerve is absolutely indicated, even though another addition be made in ligating the thyroid arteries. The results obtained in my cases legitimize this proposition.

A CASE OF INTERMITTENT DEAFNESS.

BY CHARLES DEADY, M. D.

THE patient, L. C., aged thirty-three, born in this country, of French parentage, is a well-built, robust man apparently in excellent general health, but of a highly nervous temperament, and much subject to mental depression. He was formerly a traveling salesman for a New York business house, and believes that the origin of this difficulty was in the use of a patent cholera mixture which he took for diarrhea. He states that he noticed that every time he took the medicine he became deaf for a short time, and as he used the concoction frequently during several months, he attributes his present condition to its action. It must be stated that his hearing is never normal. In the right ear, never better than one inch for the watch, and cannot hear conversation on the telephone. The left ear can hear the telephone and conversation during the intermissions, but when the aggravations come on this is impossible, and during this time the right ear, which does not participate in the aggravations, has the better hearing of the two. The deafness comes on about 10 A. M., cannot hear conversation, but can hear shrill sounds. During the aggravation has constant roaring in the ears; as improvement sets in this changes to a whistle and finally to a hiss. Improvement is always so indicated. Weather has no effect. Hears no better in a noise. Low-pitched noises are more troublesome. Street noise is intolerable. Cannot hear the tones of a piano until the high notes are reached; all the lower notes sound like thumps, then there is an octave or so which is discordant, and finally the high notes come out clearly. Can easily hear canaries singing in the rooms above. This condition lasts from 10 A. M. until 3 or 4 P. M., then improvement gradually takes place and by 7 P. M. the hearing is at its best; and so continues until he retires.

Sometime after midnight he awakes and again finds himself deaf, remaining so until he is taking his bath in the morning, when another intermission occurs lasting until 10 A. M.

With the exception of his morning bath, nothing has any favorable effect upon his condition, except eating, which always relieves, so much so that he is tempted to eat too frequently because of the relief thereby obtained.

He has had an attack of this kind every year for ten years, varying in length from a few weeks to several months. The present attack has already lasted eight months, and still persists. Examination reveals a retracted condition of both drumheads, the color being a dull and whitish gray, and the light spot being absent. The eustachian tubes are patent, the throat thickened and granular. Bone conduction is poor in both ears, as is also aerial conduction. Hears better when the fork is placed on a certain spot on the mastoid process apparently just above the antrum.

He has been given a number of remedies, among others aurum, chin., ars., kali phos., chenopod., phos., nux mosch., nux vom., strych., and sulph, with no, or at the best, temporary effect. He is highly intelligent, and tries his best to help himself by regular habits, exercise, etc.

SUBCONJUNCTIVAL INJECTIONS OF COCAINE IN OPERATIONS UPON THE EYE.*

BY DR. SANTOS FERNANDEZ (HAVANA).

ALTHOUGH known and studied since 1855, cocaine was of no real service in surgery until Koller demonstrated its analgesic action upon the cornea and conjunctiva at the Ophthalmological Congress at Heidelberg. It is the salt, the muriate of the alkaloid, that is universally employed under the name of cocaine.

The use of cocaine as a local anæsthetic marks a most notable advance, and is, together with other recent methods, a powerful contribution to the progress of ocular surgery.

During the early years of the decade which followed the discovery of Koller, numerous observations upon the favorable or injurious effects of cocaine were published, but experience continues to demonstrate that the latter disappear when compared with the advantages obtained. We propose to treat of some particulars of its use observed in our daily practice, more especially during the later years since our visit to Professor Reclus, who possesses the greatest experience in the administration of this alkaloid as an anæsthetic. Our impartial observations will serve in a measure to mark the limits of application of subconjunctival injections of cocaine, a subject that has never been treated in as exact and definite a manner bearing on ophthalmology as in general surgery.

We employ subconjunctival injections in strabotomy; capsular advancement and enucleation are the operations

* *Annales d'Oculistique*, April, 1897.

most often performed under cocaine, and we will limit ourselves to these in the recital which follows. In these operations, especially in enucleation, we do not always obtain a complete anæsthesia beyond the conjunctiva. This tissue may be detached from the limb without pain in almost every case, but the section of the muscles will produce as much pain as if it had been done without the injection. The following observations go to support what we have stated, and will be followed by the considerations which they suggest.

CASE I. Patient aged thirty-five years. Divergent strabismus of the right eye. After two instillations of a three per cent. solution of cocaine, made at intervals of ten minutes, a half a Pravaz syringe of a two per cent. solution of cocaine was injected beneath the conjunctiva; the other half being injected in the deeper tissues. The patient felt only a slight burning; the analgesia for operation was complete.

CASE II. Mulatto, aged twenty-three years. Enucleation of the left eye for sarcoma. The great sensitiveness of this eye is not influenced by instillations of cocaine, nor by inhalation of ether. The subconjunctival injection of three half syringes of a two per cent. solution of cocaine produced only a relative analgesia. The operation was long and laborious.

CASE III. P. N. C., aged thirty-three years. Beginning panophthalmitis. Two subconjunctival injections of cocaine each a half syringe of a two per cent. solution produced no analgesia. Ether narcosis was considered necessary for the enucleation.

CASE IV. Divergent strabismus. Capsulary advancement. Subconjunctival injections after instillations. The patient complained of slight pain when the hook drew upon the tendon of the internal rectus.

CASE V. Convergent strabismus. Patient aged seventeen years. External capsulary advancement. After instillation of several drops of cocaine, a half a Pravaz syringe of a two per cent. solution was injected beneath the conjunctiva. The patient complained of nothing during the operation and said that no pain was felt.

CASE VI. P. J. B., aged twenty-seven years. Capsulary

advancement for convergent strabismus. The injection of a quarter of a Pravaz syringe of a two per cent. solution of cocaine, made after instillation, permitted the operation to be performed. The patient whimpered unconstrainedly but said that there was no pain.

CASE VII. Miss X., aged eighteen. Injection of a third of a syringe and afterward a half a syringe in the region of the lachrymal gland allowed the ablation of this gland without pain.

CASE VIII. A mulatto, aged thirty-seven. Iridocyclitis. Enucleation of an atrophied globe, sensitive to pressure. After instillations, the subconjunctival injection of a Pravaz syringe, part in the internal angle, part in the external angle. The patient underwent the operation without making a movement. He groaned, but declared that he suffered no pain.

CASE IX. Patient aged fourteen years. Capsulary advancement for convergent strabismus. Application of cocaine as in the preceding case. The patient complained only when the sutures were drawn up to be tied. The injection of an additional third of a syringe allowed the operation to be finished without pain.

CASE X. Patient aged twenty years. Enucleation. After instillations, a third of a syringe was injected. When the globe of the eye was firmly fixed with a pointed hook, the patient was so frightened that it was found necessary to have recourse to chloroform. The narcosis was bad and the enucleation long and laborious.

CASE XI. Patient aged fifteen years. Convergent strabismus. External capsulary advancement, internal tenotomy. After instillations a third of a syringe was injected in the external angle. The patient went through the whole operation without complaining of insufficient analgesia.

CASE XII. Patient aged eighteen years. Convergent strabismus of the left eye. Capsulary advancement and tenotomy. A half syringe was injected into each angle, the injection was repeated in the external angle to put in the sutures.

CASE XIII. Patient aged twenty-two years. Granular conjunctivitis. The scraping of the granulations could not be performed in spite of instillations and two intra-orbital injections. General narcosis was necessary.

CASE XIV. Patient aged eighty-one years. Enucleation for

sarcoma. In spite of multiple injections in the tumor, which covered the globe, and in the globe itself, the operation is painful.

CASE XV. Patient aged twenty-two years. Atrophy of the right eye following traumatism. Enucleation. After instillations, a third of a syringe was injected at each angle. The chemosis consecutive to the injections necessitated an interruption of the operation. Finally, recourse to chloroform.

CASE XVI. Patient aged sixteen years. Excision of the cul-de-sac. Instillations. Subconjunctival injections in the cul-de-sac. The operation could be performed but was painful.

CASE XVII. Patient aged thirty-seven years. Lachrymal tumor of right side. After the injection of an entire syringe in the anterior wall of the sac, that region became œdematous. A deep incision made with the bistoury to evacuate the fluid produced no pain.

CASE XVIII. Patient aged sixty-eight years. Complete staphylocoma, sensitive and inflamed. After instillations and subconjunctival injections the enucleation could be only partly performed. Chloroform.

CASE XIX. Patient aged twenty-three years. Instillations and subconjunctival injection permitted the ablation of the palpebral lachrymal sac to be made without pain.

CASE XX. Patient aged thirty years. Lachrymal tumor of the left side. Injection of half a syringe of a two per cent. solution of cocaine. Deep incision in the anterior wall with the bistoury. The patient seems to feel pain but denies it when questioned.

CASE XXI. Patient aged fifty years. Chronic dacryocystitis. Injections of cocaine produced a marked œdema of the region and the patient complained very much of the pain of the incision. If it is necessary to repeat the operation chloroform must be used.

CASE XXII. A young woman, F. A. Lachrymal tumor of right side. Incision. After introducing the needle of the syringe, I applied ice upon the skin. The needle was directed toward different points and finally forced in deeply to inject the rest of its contents (a two per cent. solution of cocaine). After disinfection a deep incision and a complete removal was effected without provoking the least manifestation of pain on the part of the patient, who was very pusillanimous.

CASE XXIII. Patient aged eighteen years. External capsular

advancement. One subconjunctival injection of half a syringe, after an instillation of four drops, was sufficient for the performance of the operation without any manifestation of pain other than a contraction of the lids.

CASE XXIV. Patient aged thirty-two years. Deep incision of a chronic lachrymal tumor on the right side. The application of ice upon the skin permitted the introduction of the needle without pain. In spite of the great impressionability of the patient, complete analgesia was obtained for the operation.

CASE XXV. A woman suffering from chronic lachrymal tumor. Ice and the injection of half a syringe of cocaine permitted the making of the injection and the incision without their being felt by the patient.

CASE XXVI. Patient aged forty-one. Was operated seventeen years ago for a lachrymal tumor on the right side. Ice and cocaine permitted the incision of the lachrymal sac without causing much pain.

CASE XXVII. A woman aged twenty-seven years. The patient refused the application of cocaine. The application of ice did not permit the making of an incision in the anterior wall of the sac, the patient making an outcry. Chloroform.

CASE XXVIII. Patient aged thirty-eight years. Enucleation of an atrophied left eye. Two subconjunctival injections, one in each angle after instillations. The chemosis following the injections rendered the operation somewhat difficult, but the patient complained of pain only toward the end of the operation.

CASE XXIX. Patient aged thirty-two years. Internal tenotomy and external capsular advancement. Two subconjunctival injections, one at each angle, made after instillations, caused the patient to comfortably undergo the operation.

CASE XXX. Patient thirty-one years of age. Enucleation of the left eye for sympathetic ophthalmia *In congénère*. The first intention was to obtain anæsthesia by subcutaneous injection of morphia with chloroform narcosis. After making one of these injections in each arm, the injection of a half syringe of cocaine in each angle of the eye made the operation easy.

CASE XXXI. Enucleation of an atrophied right eye subsequent to a shot wound. Patient aged twenty-seven. I made a subcutaneous injection of morphia with the idea of administering

chloroform. Two subcutaneous injections of cocaine were found inefficacious. Chloroform.

CASE XXXII. Patient aged nineteen years. Beginning atrophy of the right eye, enucleation. On account of the great fearfulness of the patient the subconjunctival injections did not accomplish their purpose. Morphine and chloroform.

CASE XXXIII. Patient thirty-nine years of age. Chronic dacryocystitis. Incision. The patient moaned before the injection of cocaine was made, and continued to moan during the injection and during the incision.

CASE XXXIV. Ramon K. Atrophy of the globe following traumatism. Enucleation after instillation and injection of half a syringe in the internal angle only. The beginning atrophy made the operation easy and the patient manifested no signs of pain.

CASE XXXV. Patient thirty-seven years of age. Beginning atrophy of the right eye. Enucleation. After instillation I made four injections, first above then below, each consisting of half a syringe of a one per cent. solution. The operation was made without pain.

CASE XXXVI. J. B. R., aged fifty years. Divergent strabismus. Capsulary advancement. Instillation and injection in the internal angle of a two per cent. solution produced so much analgesia that the patient manifested no sign of pain.

CASE XXXVII. The patient refused the injection for fear of the introduction of the needle. I profited by the first effect of the ether, which the patient took very badly, to inject half a syringe of a two per cent. solution in the internal angle. This allowed the performance of a capsulary advancement to correct a convergent strabismus.

CASE XXXVIII. Miss M. M. Partial ablation of the lachrymal gland on account of obstruction of the left lachrymal canal. The injection of a quarter of a syringe of a two per cent. solution in the gland after instillation allowed me to perform the ablation without pain.

CASE XXXIX. A young patient suffering from profuse lachrymation for some years on account of obstruction of the canal. The treatment having been continued for a long time without effect, I removed the gland. To produce superficial anæsthesia a third of a syringe was injected in the region of the gland. The patient underwent the operation quietly.

CASE XL. L. P., suffering from convergent strabismus of the right eye. Capsulary advancement. After instillations a deep injection of half a syringe of a two per cent. solution was made in the internal angle. The operation was performed without difficulty and the patient assured me that there was no pain.

CASE XLI. E. G., suffering from convergent strabismus. Capsulary advancement. After instillations I made three subconjunctival injections as deep as possible in three different points at the external angle, injecting at each point a half syringe of a two per cent. solution, that is to say .01 centigram of cocaine. The patient underwent the operation quietly.

CASE XLII. Patient aged forty-five years. Operated before for double cataract, suffering from convergent strabismus. After instillations I injected a quarter of a syringe in the inferior part and a quarter of a syringe in the superior part of the external angle in order to perform capsulary advancement. At a second sitting I injected a half syringe in the internal angle to make a tenotomy. The patient complained only toward the end of the operation.

CASE XLIII. A woman, M. A. Divergent strabismus. Internal capsulary advancement and external tenotomy. After instillations I injected a gram and a half of a two per cent. solution in the two angles. These injections produced a pronounced œdema about the cornea and, toward the end of the operation, vomiting; but the analgesia was complete.

CASE XLIV. Patient thirty-five years of age. Loss of an eye for a long time, at present atrophy. After instillations, deep subconjunctival injections of .02 centigram (two per cent. solution). Analgesia insufficient to perform the operation. Ether.

CASE XLV. A boy, fifteen years old. Atrophy of the left eye. An attempt was made to enucleate after instillations and deep injections of a syringe of a two per cent. solution. The exaggerated sensitiveness and the cries of the patient obliged me to have recourse to chloroform.

CASE XLVI. Colored woman, F. N. Internal tenotomy after an injection of 1 gram of a one per cent. solution in the internal angle. The patient manifested some signs of pain when the hook was attached to the muscle.

CASE XLVII. Patient was thirty-eight years of age. Internal

tenotomy of right eye for convergent strabismus. After instillations I injected one-fifth of a syringe of a one per cent. solution in the internal angle and then introduced the needle more deeply in emptying the syringe. The operation was endured without complaint.

Résumé of Forty-seven Cases.—Among the forty-seven cases operated we find thirty-one men and sixteen women, all more than fourteen years of age.

The operations may be classified as follows:

Capsulary advancement.

Capsulary advancement and tenotomy.

Strabotomy.

Enucleation of the globe.

Incision of lachrymal tumor.

Extirpation of lachrymal gland.

Curetting of granulations.

Analgesia was obtained in twenty-nine cases, while in seventeen cases the effect of the cocaine was insufficient. In seven of these last recourse was had to chloroform, in three to chloroform and morphine, and in three to ether.

In four cases where analgesia was obtained, the pain of the puncture was avoided by the application of ice upon the skin. All of the subconjunctival injections were preceded by instillations of cocaine.

The subconjunctival injections were made in the internal angle or the external angle, or in both at the same time, or around the periphery of the eye.

The solution injected was, in the majority of cases, a two per cent. solution, in the more recent cases a one per cent. solution. The amount injected was never less than a quarter of a centigram nor more than half a centigram.

Before entering upon further discussion we desire to emphasize the fact that our cases constitute the first complete writing presenting the basis necessary to form a judgment upon the question of subconjunctival injections of cocaine. Subconjunctival injections of cocaine in other regions of the body have been thoroughly studied by Reclus, as we have already said. The technique and laws

fixed by him may be applied to the intra-orbital region, taking into account the fact that the doses should be measured more carefully. The close proximity of the nerve centers and the extensive vascularity of this region demand special precautions in the use of an agent as active as cocaine. It is for these reasons that for four years and in about fifty cases we have never exceeded a dose of .05 centigram, while Reclus considered .05 and 10 centigrams as ordinary doses and gave 20 centigrams as the highest limit for one operation.

It was only necessary to proceed with enough caution to avoid a catastrophe, and this circumstance, together with reasons that we will give later, will explain why we have not always obtained an analgesia sufficient for operation and were obliged to have recourse to general narcosis.

It is, nevertheless, probable that we could go as far as 10 centigrams: if in some patients .02 to .03 centigram have produced a complete analgesia, we may reasonably expect that 10 centigrams would produce it in all.

The one per cent. solution recently recommended by Reclus in preference to the two per cent. solution that he formerly employed, and which we ourselves have employed up to four or five months ago, would allow greater confidence, for it is to the employment of a weak solution that the professor of the *Faculté de Paris* attributes the ease with which he has injected as much as 19 centigrams without a single accident in thousands of cases (3197).

We have not been frightened in hearing on all sides the cases in which death followed injections of cocaine in a dose of .05 centigram, nor in taking notice of the symptoms of poisoning caused by this alkaloid, such as pallor, cold sweat, rapid pulse, dyspnoea, fear of death, dilatation of the pupils, vomiting, vertigo, and syncope. There is a risk of producing these symptoms only when toxic doses are employed.

The alarm caused by accidents attributed to the use of cocaine has deterred many surgeons from its use. We found ourselves among this number until 1891, the time

when we commenced its use with the necessary precautions, guided by the reasons already mentioned.

After employing subconjunctival injections in more than fifty cases, we have not had a single accident, either great or small. It is true that we have observed, with redoubled vigor, the technique and the precautions indicated for other regions of the body, knowing that we were operating in a more dangerous field.

We have never made such injections except with the patient in the horizontal position, which should be retained as long as possible, and we have never forgotten that instead of fasting the patient ought to take a light repast a short time before receiving the injection. For some time we have observed the same precaution with chloroform, and we have brought it to the notice of the Royal Academy of Havana in our communication upon the different cases of syncope supervening in the course of or after chloroform anæsthesia. It should also be recalled that cocaine is diffused only with difficulty in the tissues, and that its analgesic action is limited to the places where this alkaloid is in contact with the anatomical elements. It is necessary to bear this in mind, for if one makes an injection in the subcutaneous tissue to make some incision the skin remains sensible to the knife. It is indispensable to make the injection penetrate into the depth of the skin itself, for the action of cocaine follows the different layers of tissue. It is for this reason that it is not recommended for laparotomies when the knife traverses different layers, difficult to determine or to limit, which prevents the injection into each one of the necessary quantity of the alkaloid.

These considerations show how easy it is for subconjunctival and intra-orbital injections to fail in their purpose; these failures are explained by the different anatomical layers that the solution ought to reach. These are: the conjunctiva, the capsule of Tenon, the cellular tissue, the muscles and their sheaths, and they require a large quantity of the anæsthetic liquid and a relatively long time for each one to be reached in its turn. It is necessary then to try

larger doses than those employed so far and particularly in enucleation. We do not doubt that this will happen finally, considering that, in using the one per cent. solution (the weakest efficacious solution used so far) we have injected 10, 12, and even 15 centigrams ; we expect then to present a greater number of analgesias than to-day.

The technique of subconjunctival injections of cocaine does not differ in general from those made in other parts of the body, but it is necessary always to be mindful of the necessity of spreading the injected liquid in the different anatomical layers of the region. With this view we introduce the needle as deeply as possible into the orbital cavity and behind the globe, especially when performing any enucleation. As soon as the needle enters the tissues we inject the contents of the syringe as gradually as possible, in proportion to the depth of the needle, in cases when the patient feels the pain of the puncture. In the other class of cases we introduce the needle at once and make the injection while taking it out. In this way the penetration of the liquid directly into a vein is avoided almost surely when the vessel is punctured from side to side by the deeply introduced needle.

It is superfluous to insist upon the necessity of directing the needle toward the sensitive points such as the insertions of the muscles. The superficial subconjunctival injection ought not to be large in amount, for the œdema which it provokes in such cases obscures the field of operation without, however, constituting an insurmountable obstacle to surgical operations. It is necessary to use a solution that shows evidence of its anæsthetic qualities, without boiling, for boiling transforms the cocaine into a substance which possesses no anæsthetic qualities.

The fifty cases that we have submitted to the consideration of our confrères cannot solve the many problems connected with the local anæsthesia of a region made up of such different anatomical elements, but we believe that we have delineated the field of action, which will permit more expert operators to formulate precise laws of local anæs-

thesia of the ocular region, which, from its limited size, is destined more than any other region to enfranchise us from general narcosis.

We will end this paper with the following conclusions :

1. Subcutaneous injections of cocaine in doses from .02 to .04 centigram permit, in a great number of cases, the performance of such operations as enucleation of the globe, capsulary advancement, strabotomy, and others, without pain to the patient.

2. Doses of from .05 to 10 centigrams ought to produce analgesia in all cases ; all future investigation should have for its object the determination of this dose.

ABSTRACTS FROM CURRENT LITERATURE.

Byronca and Meniere.—A Case of Epithelial Tumor Developing in the Neighborhood of the Thyroid Gland.—*Ann. des Mal. de l'Oreil. et du Lar.*, May, 1896.

The patient was a man sixty-seven years of age, who had undergone a thyroidectomy and who suffered from frequent cough, aphonia, cyanosis, and a constantly increasing dyspnœa. There were no signs of a tumor, no œdema of the glottis, but the vocal chords remained in the position of abduction. The patient died from progressively increasing dyspnœa, culminating in asphyxia. The autopsy showed a grayish-white tumor lying between the trachea and esophagus, both of which were very much flattened. The microscope showed the tumor to be a fibro-sarcoma which probably developed from the remains of the goitre, which had not been completely removed. PEARSALL.

Marlow, F. W.—Optic Neuritis Due to Dental Irritation.—*Annals of Ophth.*, January, 1897.

Patient, female, aged twenty-five; somewhat anæmic from gastric disturbance. Two weeks before presenting for treatment had an ulcerated tooth. A day or two later the whole left side of face became swollen. On the appearance of the swelling she noticed a severe pain in the left eye. This persisted for a week when vision became blurred, the blurring gradually increasing until the present time. Had had no previous trouble with the eyes but considerable headache in the frontal region, especially during the past two weeks, when it has been worse on the left side. Status præsens—left eye shows slight exophthalmos, movement upward and inward and pressure backward, causing pain. R. V. = $\frac{5}{9}$ — L. V. = $\frac{6}{36}$, not improved. The ophthalmoscope showed in O. S. optic neuritis with one small hemorrhage, the

surface of the swollen disk clearly seen with + 5 D. Fundus otherwise emmetropic—fundus of right eye normal. The dental lesion was an alveolar abscess, of the first bicuspid of the left upper jaw, which was opened and treated antiseptically by a dentist, with rapid improvement. Under treatment, in three weeks R. V. = $\frac{6}{1\frac{1}{2}}$ with +.75 D.^c axis 75° — R. V. = $\frac{6}{8}$ P. Outer half of the optic disk quite clear, swelling entirely subsided. Whole disk now best seen with the convex lens behind the mirror.

DEADY.

De Schweinitz, G. E.—Tarsitis. Two Acute Cases of this Affection are Reported. The First Syphilitic and the Second Suppurative.—*Philadelphia Polyclinic*, February 27, 1897.

The first occurred in a male of thirty-three years who had contracted syphilis nine months previously. At the time of his admission to the hospital he had a papillo-squamous rash covering both arms, and a large squamous patch on the inner surface of the right thigh. The glands in front of the ear and in the axilla were enlarged.

Both eyelids were enormously swollen, the integument presenting a somewhat glistening, reddish flush. The tarsi were greatly thickened, sharply defined, and from four to five times their normal thickness. The palpebral conjunctiva appeared covered with thickened granulations, between which were scattered small yellowish swellings.

Under a "mixed treatment," extending over a period of 2½ months, the lids have returned to their normal condition, although there is still a slight thickening of the edges of the tarsi.

The second case was that of a practicing physician, forty years of age, who first suffered from a slight irritation of the right upper lid, which rapidly became reddened, baggy, and tender. The lid swelled to several times its natural size, and the tarsus could be felt to be greatly thickened as well as softened, and on drawing the skin firmly over the tarsus the latter could be outlined and seen to be four or five times its normal thickness. The edge of the lids presented four or five yellowish points of suppuration, corresponding to the mouths of the meibomian ducts. The conjunctiva was injected, and there was a slight catarrhal discharge. Compresses of hot boric acid solution were applied for twenty-

four hours, which reduced the infiltration of the cellular tissue of the lids. The central portion of the margin of the lid was split by an incision which joined all the suppurating points referred to, which disclosed a large slough occupying the position of the tarsus. This was removed with the forceps and curette, irrigated, and the compresses reapplied. He made a good recovery.

RITCHIE.

Lockwood. Nasal Obstruction and the Symptoms of Cardiac Disease.—*N. Y. Med. Jour.*, January 16, 1897.

In his discussion of the subject the author adds to the list of causes for the dyspnœa, the earliest evidence of failing cardiac compensation, the existence of nasal obstruction. He supports his statement theoretically by calling attention to the fact that disease of heart is most frequently found in rheumatic and gouty patients, and it is these patients that are subject to catarrhal affections of the mucous membranes. Among the early symptoms of a failing heart are headache, drowsiness, and mental depression, etc. These are symptoms of insufficient oxidation of the blood, and may be due either to the tendency to venous engorgement existing in these conditions whereby the turbinated tissues are enlarged, or to pre-existing obstruction of the nasal cavities.

The author relates eight cases of organic cardiac disease in which the symptoms of failing heart's action were promptly relieved by removing the nasal obstruction, and from these the following conclusions are reached :

1. It is highly probable that patients with cardiac disease are more subject to nasal obstruction than others.

2. Nasal obstruction, occurring in a patient with cardiac disease, may upset the balance of the respiratory compensation, and produce decided symptoms.

3. Unless care be taken these symptoms may be mistaken for those of failing compensation, and may lead to a gloomy prognosis and a faulty treatment.

4. Unless the nasal obstruction be promptly relieved, and the patient allowed a sufficient quantity of good air, the arterial spasm may possibly occur, throwing an increased amount of work on the heart already handicapped, and may become a factor in inducing dilatation. The effect of the poor quality of the blood thus

supplied to the endocardium must also be taken into consideration.

5. Nasal examination made during the day may not reveal the actual obstruction, which is most apt to occur at night, when the patient is recumbent and the circulation is in its most sluggish state. To the congestion of the posterior portion of the inferior turbinated bodies thus induced the characteristic nocturnal attacks are to be ascribed, through the medium of asphyxia and arterial contraction. Nasal examination, however, usually reveals some extreme vasomotor irritability of the turbinated bodies.

6. In cases of cardiac disease, including angina and pseudo-angina pectoris, no estimate of the patient's condition can be made, and no rational treatment can be inaugurated, without a thorough examination of the patency of the upper respiratory passages.

PEARSALL.

Rice.—**Why are Operations upon the Turbinated Bodies Becoming Less Frequent?**—*Laryngoscope*, March, 1897.

A paper on this subject was read before the Section on Laryngology and Rhinology of the New York Academy of Medicine in which it was noted that while a few years ago "one-half the papers relating to nasal disease, published by American writers, discussed the comparative values of the many instruments devised for operating upon the nasal turbinateds," at present there is far less operating and more attention paid to the removal of the causes of turbinated engorgement. After giving a short history of the decline of turbinated operations, Dr. Rice formulates the following as the principal reasons :

1. A very small percentage of anterior and posterior swellings constitute either true bony or soft tissue hypertrophies, but are simply vascular distentions caused by some irritant in the nostril itself or extranasal, and when the irritants are removed the vascular swellings disappear without more than cleansing and protecting treatment.

2. That the pale enlargements seen in so-called "nervous coryzas" are not often the primary lesion in the nostrils, but are secondary usually to abnormalities of the septum, although the nasal irritability is also due to an external irritant pus, the "peculiar idiosyncrasy."

3. Nasal congestion and turbinated enlargement may be caused by anything interfering with the general circulation, by digestive disorders, by functional derangements of the various organs of the body, by faulty hygienic conditions, and especially by the excessive use of alcohol and tobacco. The correction of these errors is sufficient.

4. Conservative rhinologists feel that it is most important to check the large amount of unnecessary interference with the turbinated bodies.

5. It has been found that by proper cleansing, and by suitable protection of the nasal mucous membrane, so-called hypertrophies will often disappear without the use of destructive agents.

PEARSALL.

Quay, G. H.—The Treatment of Acute Tonsilitis with the Galvano-cautery.—*Medical Era*, May, 1897.

The author reports three cases of acute tonsilitis which were treated by puncturing the tonsils in three or four places with the galvano-cautery point; the point being heated to cherry-red heat and introduced into the crypts for from one-half to one-third of an inch. In each case the pain was relieved within an hour or two and the attack aborted.

PEARSALL.

Soziodole in the Nose and Throat.—*American Medico-Surgical Bulletin*, January 10, 1897.

In quite an extensive monograph on the use of the soziodole preparations in general there appear extracts from the practice of Professors Kuhn, Schwimmer, Stetter, Seifert, Bresgen, and others, recommending their use in various diseases of the throat and nose. The soziodole salts in use are those formed by the combination of soziodolic acid with potassium, sodium, zinc, and mercury. The sodium compound is used in any condition where iodoform would be indicated and is said in many cases to be more effective than iodoform, as well as odorless. Soziodole-sodium is especially recommended in swellings of the mucous membrane with collections of mucus. Soziodole-zinc has been found especially valuable in atrophic catarrhs and ozenas. This salt is an escharotic and must be used carefully. The mercury salt is the only one that is at all poisonous, and finds its field of

greatest usefulness in syphilitic tuberculous ulcerations of the nose, throat, and larynx.

Flatau gives the following formula for use in ozena :

Soziodole-Zinc.....	1 to 2 parts
Vaseline.....	8 parts
Lanolin	8 parts
Liquid Paraffin.....	To make soft ointment

Apply on tampons. Causes no irritation. PEARSALL.

Marlow, F. W.—Disappearance of Ptosis after Correction of Astigmatism.—*Annals of Ophth.*—January, 1897.

Female patient, aged seventeen. There was a marked ptosis of the left eye, the right being affected to a much slighter extent. This condition had existed for some years. Examination revealed astigmatism, corrected by the following formula : O. D. + .25 D° Ax. 90°, O. S.—1 D° Ax. 180°. Six months later, the ptosis was found to have almost entirely disappeared while wearing the glasses, but recurs at once in a marked degree when they are removed, the change being quite involuntary. DEADY.

Sendziak.—Contribution to the Treatment of Deaf-Mutism by Operation for Adenoid Vegetations.—*The Laryngoscope*, April, 1897.

The author notes the frequency of the occurrence of adenoid vegetations in deaf-mutes and their infrequency in healthy children. The following estimated percentages are cited : Lemeke reports adenoid vegetations occurring in 50 per cent. of deaf-mutes examined ; Wisblewski of Poland, 57.5 per cent. ; Pierson, more than 50 per cent. ; Frankenberger, 59.49 per cent. ; Aldrich (cited by Frankenberger) gives the largest percentage at 73 per cent.

Meyer, the father of adenoid vegetations, notes that scarcely 1 per cent. of healthy children are so affected ; Doyer (cited by Frankenberger) gives 5 per cent. ; Schmieglslow, 5 per cent. of greater and 15 per cent. of lesser degree ; Wisblewski, 7 per cent. ; Kafermann, 9 per cent. Several cases of adenoid vegetations at birth are reported.

As further proof of the influence of post-nasal growths, Halbeis gives 53 per cent. ; Meyer, 74.8 per cent., and Hartmann, 74.18 per cent. of adenoid growths as occurring in the deaf.

The author then reports two cases of deaf-mutism that were much relieved by removal of the growth. In both cases the hearing improved and the children began to speak some words. In the first case the rapid mental and physical development following the operation were more marked than the progress in hearing and speaking.

PEARSALL.

Strangways, W. F.—Hay Fever.—*The Laryngoscope*, April, 1897.

The writer adds some results of later investigation to a paper written last year, in which he advances the theory that hay fever is due not to the presence of pollen or dust that produces a mechanical irritation of the mucous membrane and a consequent vaso-motor paresis ; but that it is "in all probability the result of the action of some protoplasmic element in the pollen which causes fermentation and the formation of a toxine which in turn acts as the real poisonous irritant."

His later investigation relates to the amount of pollen in the air. Estimations made with rag weed, as existing in the largest numbers, show that there would be a dilution of one part of pollen to fifteen or twenty billion parts of air.

Believing that these toxins would not be developed in an acid medium the author recommends the following wash :

Acetic acid.....	m ii
Resorcin.....	grs. iss
Sodium chloride.....	grs. iv
Aqua dest.....	ʒ j

Internally large doses of muriatic acid were given—as high as a dram well diluted—and gave complete relief in many cases.

PEARSALL.

Scheppegrell.—The Treatment of Laryngeal Tuberculosis with Cupric Interstitial Cataphoresis, with Report of Cases ; the Advantages of Direct Laryngoscopy in this Method.—*The Laryngoscope*, April, 1897.

Dr. Scheppegrell of New Orleans, at the meeting of the Southern Section of the American Laryngological, etc., Society, read a paper on the above subject. After describing previous methods and bringing to notice their manifestations, difficulties, and lack of satisfactory results, the author proceeds to describe the

methods and results of cupric cataphoresis. In its application, spherical copper bulbs of from $\frac{1}{8}$ to $\frac{1}{4}$ of an inch in diameter are attached to the positive pole and a current of from 2 to 5 milliamperes applied directly to the tissues. The oxychloride of copper formed by the electrolysis of the tissues passes directly into the tissues.

Many advantages accrue from the use of Kirstein's method of direct laryngoscopy.

Three cases are reported. Two presented ulceration of the larynx with lung complications. The third case gave evidence of no preliminary disease although the tubercle-bacillus was found in the sputum together with the clinical rigors of laryngeal tuberculosis. In all of these cases the ulceration was cured and the infiltration diminished.

The advantages resulting from cupric cataphoresis are enumerated by the author as follows :

1. There is *no real destruction of the tissues*, and *no laceration of the surfaces* which might form a point of entrance for new pathogenic germs for reinfection, as is the case with the method of curettement, and, to a certain extent, also, with the galvanocautery and simple electrolysis. The cure is effected by the healthy reaction of the tissues, in the same manner that we often see specific lesions heal when the system is under the influence of mercurials.

2. In the cases which he has treated with this method, there has been *absolutely no reaction or hemorrhage* following the application—a point of great importance with tubercular patients.

3. This method does not demand the high degree of manipulative skill required for curettement and the electro-cautery in the larynx, and is especially simple when direct laryngoscopy can be used.

4. This method is applicable to *all cases* of laryngeal tuberculosis.

PEARSALL.

Griffin, E. Harrison.—Deformities of the Nasal Septum.—*N. Y. Med. Journ.*, June 12, 1897.

Of 250 cases of nose and throat disease, the writer has found deflection of the septum in 192 cases, 133 being males and 59 females. The septum was deflected toward the right in 86 cases, toward the left in 78 cases, and sigmoid deflection was

present in 28 cases. Of the entire number, only 49 admit having received injury to the nose. The author denies Zuckerkandl's statement that the septum is always found straight before the seventh year, and submits in evidence two cases, one a boy aged five years, with a foreign body in the nose, which, upon removal, was found to be a rhinolith, in the center of which was a shoe button. The septum was pushed over toward one side, and had a depression corresponding to the size of the shoe button. The second case was a girl aged six years, in whom a deflected septum existed, with a large glass bead occupying the space of deflection.

Of the 192 patients, only 13 complained of stenosis of the nose, and only 27 complained of symptoms referring directly to this organ. Most of them complained of their throats. The symptoms for which the patients applied were as follows: Stenosis of the nose, 13; catarrh of nose, 2; vomiting from stomach, 5; phlegm in throat, 39; deafness, 12; choking, 8; hoarseness, 3; bronchitis, 47; epistaxis, 7; impairment of voice, 24; otitis media, 3; hay fever, 8; asthma, 8; snoring, 5; shortness of breath, 1; foreign body in throat, 1; headache, 6. All these symptoms were either dissipated entirely or greatly relieved by an operation upon the septum. Two of the patients were under seven years, 40 were between seven and twenty, 73 were between twenty and thirty, 42 between thirty and forty, 14 between forty and fifty, 16 between fifty and sixty, 4 between sixty and seventy, 1 over seventy; 124 of the deflections were of the lower horizontal division, 16 of the superior horizontal, 14 of the anterior vertical, 9 where the cartilage of the septum was concerned, 28 irregular, and in 1 the whole septum was pushed over.

In 120 cases the deflection partially or entirely occluded the interior meatus of the nose—26 impinged upon the middle meatus, 29 involved both the inferior and middle meatus, 2 protruded into the superior meatus, and 9 caused stenosis by a deflection of the anterior cartilage of the nose. PEARSALL.

Wyeth, Jno. A.—The Removal of Large Neoplasms of the Naso-pharynx and Antrum Maxillare—An Original Method.—*N. Y. Med. Journ.*, April 8, 1897.

The patient, a male, aged twenty, first seen in December, 1894. History as follows: Two years ago, first noticed difficulty in

nasal breathing. Three months later, suffered from severe pain in head, causing loss of appetite and insomnia. In June, 1893, a naso-pharyngeal polypus was discovered which was treated by the galvano-cautery by Dr. Lincoln, who again saw him on November 2 of the same year; the tumor having in the mean time grown considerably. On June 12, 1894, the growth was removed by Dr. Lincoln with the galvano-cautery, which was also applied to the base from which the tumor had been removed. In July the left cheek began to swell and the left eye to protrude, and by the middle of November it began to break down rapidly. He came under the author's care December 8, 1894. He was pale, waxy, anæmic, and suffering from double vision. The left eye was wide open, the ball was protruded and pressed inward, resting partly upon the nose. The left cheek was swollen, and the tissues which occupied the pterygo-maxillary and zygomatic fossæ were pushed outward.

A diagnosis was made of tumor of the naso-pharynx, projecting into the antrum of Highmore, breaking through the posterior inner wall of this cavity and into the spheno-maxillary fissure and zygomatic fossa; pressure upon the blood vessels causing venous congestion of the orbital cavity. Operation being decided upon, as a precautionary step, on account of his exsanguinated condition, a vein was opened in the arm and a pipette for saline injection introduced. An incision was made, beginning along the temporal arch two inches back of the outer angle of the orbit, following the temporal arch to the edge of the orbital cavity, along the frontal process of the malar bone, curving parallel with and one-eighth inch from the orbital margin, until the point of the knife reached the infra-orbital foramen; then downward to the level of the ala nasi and outward through the cheek, until the point of the knife neared the opening of Steno's duct. This incision was down to the bone, from the point of beginning to the lower part of the superior maxilla, where the antrum of Highmore rests upon the alveolar process of the upper maxilla opposite the first molar tooth. Hemorrhage was carefully stopped throughout the entire incision by pressure, and by ligating with catgut the larger vessels which were divided, and the soft tissues were in no way dissected up from the bone, except when it became necessary to enter the orbital cavity in its outer half, where the tissues were carefully dissected away from the bone and the eye displaced

toward the median line, until the anterior commissure of the speno-maxillary fissure came into view. Into this a keyhole saw, with teeth turned upward, was passed, and the juncture of the frontal with the malar bone rapidly divided. The saw was then turned over, with the teeth directed downward, and, beginning at the same point, was rapidly passed through the floor of the orbital cavity, traversing the supra-orbital foramen, until the antrum of Highmore was sawed through at the level of the alveolar process of the lower maxilla. A hook was then placed at the outer angle of the orbit, and a quick, sharp jerk fractured the zygomatic process of the temporal bone, displacing the side of the face, completely exposing the antrum of Highmore, the zygomatic fossa, and the pterygoid and speno-maxillary fissures. The hemorrhage was profuse, but was controlled by rapidly packing sponges into the wound and making firm compression. The pulse jumped from about 80 to 140, and the patient seemed about to expire in collapse. At this juncture one pint of saline solution, 110° to 120° Fahr., was allowed to run into the vein; the heart rallied at once, and the pulse came down to 85 beats per minute. The tumor was again exposed, and with a periosteal elevator lifted out of the antrum of Highmore, its attachments to the pterygoid process of the sphenoid bone being separated by removing the periosteum. By opening the patient's mouth and thus depressing the coronoid process of the inferior maxilla, the pterygo-maxillary fissure and the zygomatic fossa were well exposed. The whole antrum was packed with a long wick of iodoform gauze, which was allowed to project at the anterior inferior angle of the wound, from which it was drawn on the third day after the operation. The bone which had been temporarily displaced, with the soft parts adherent, was then brought back into position and held there by stitching the soft parts along the line of incision. A bandage and compress were applied to maintain approximation. No sutures were inserted in the bones. The patient made an uninterrupted recovery. He is now, more than two years after the operation, entirely well. The bones united in their normal position. He has perfect use and function of the eyeball, and although the filaments of the facial nerve are divided, he still has very fair motion of the orbicularis palpebrarum muscle. Disfigurement from the scar is insignificant.

As an anæsthetic, morphine was almost entirely relied upon,

only two drams of chloroform being given in one hour and forty minutes of narcosis. Five pints in all of salt solution were allowed to run into the veins, the blood becoming so thin that, practically, salt water ran out of the vessels in the line of the incision.

PEARSALL.

Lermoyez.—**Chronic Anæmia of the Labyrinth and the Amyl Nitrite Test.**—French Soc. Otology and Laryngology, Annual Meeting, Paris, 1896.

The author recommends the amyl nitrite test for differentiating between labyrinthine congestion and anæmia in cases of deafness, and cites a case in which the inhalation of the drug nearly doubled the hearing for low speech immediately, the tinnitus present also disappearing. The case was afterward cured by the use of trinitrin, on the hypothesis of anæmia as revealed by the test. He sums up as follows :

“(1) Morbid disturbances of the circulation in the labyrinth may be of two kinds, diametrically opposed, viz., chronic hyperæmia or chronic anæmia, both manifested by functional symptoms so exactly alike as to render them entirely undistinguishable. Their differentiation, however, is of the highest importance for the treatment. None of the signs described in the text-books are of the slightest value in this respect, but the *amyl nitrite test*, to which I am in the habit of resorting in examining my patients, furnishes a ready and certain means of arriving at a differential diagnosis. All that is necessary to do is to make the patient inhale five or six drops of this substance and compare the auditory acuity before and immediately after this inhalation. If the deafness and tinnitus are due to congestion of the labyrinth, they increase in a marked degree ; but if, on the contrary, they are dependent upon anæmia of the inner ear, there is an immediate improvement in all these symptoms, hearing being markedly sharpened, as after an air douche. There is no danger connected with the administration of amyl nitrite in such small doses, and aurists like Michaël, Weber-Liel, and Burnett, have many times ordered this substance on empirical grounds to relieve tinnitus aurium, without any serious ill-effects resulting therefrom.

“(2) The diagnosis, when established by this means, indicates the suitable treatment in each case. Every labyrinthine syndrome, which is temporarily relieved by the amyl nitrite test, is due

to ischæmia of the ear and calls for vaso-dilatory treatment. Repeated inhalations of amyl nitrite, besides being extremely inconvenient, would soon result in the system becoming accustomed to the drug, and I therefore prefer a medicament with a slower, but more durable, action, such as trinitrin, which I prescribe in doses recommended by Huchard for the treatment of angina pectoris. Of course, this medication should be associated with a suitable treatment of the cause, when it can be discovered, of the labyrinthine anæmia ; but cases are not infrequent in which it is impossible to make out the ætiology of the affection, and it is then of great advantage to be able to relieve the sufferings of the patient by a rational treatment, based on the pathological physiology of the aural symptoms."

DEADY.

Scott, Kenneth.—A Simple Operation for Ectropion.

—*Brit. Med. Jour.*, September 12, 1896.

The author gives the following description of an operation which he uses for all but extreme cases of ectropion :

"The operation is easily performed without the aid of any special instruments, and simply with the use of cocaine. The external canthus and tissues beyond are thoroughly divided by a pair of strong scissors ; the lower eyelid, which is usually the affected one, is then seized and its margin stretched sufficiently outward, parallel to the border of the other lid, so as to restore the palpebral aperture to its proper appearance ; the portion of eyelid margin thus made to extend beyond the site of the external canthus is removed, along with its contained eyelashes, by slicing it with a sharp knife. The upper and lower eyelids are then brought together, so that the original outer extremity of the one approximates exactly to the new extremity of the other eyelid. They are secured in this position by passing a silver wire suture vertically downward through the substance of the upper lid, continuing it out through that of the lower one, and then twisting the ends firmly together. Two of these retaining stitches may be introduced close together, if necessary. The edges of divided skin, along with the deeper muscular tissues, including that part which recently formed the outer end of the affected eyelid, are simply stitched together with a continuous fine silk suture."

DEADY.

BOOK REVIEWS.

SYSTEM OF DISEASES OF THE EYE. By American, British, Dutch, French, German, and Spanish Authors. Edited by WM. F. NORRIS, A. M., M. D., and CHARLES A. OLIVER, A. M., M. D., of Philadelphia, U. S. A. Volume II. Examination of the Eye, School Hygiene, Statistics of Blindness, and Antisepsis. With thirteen full-page plates and two hundred and fourteen text illustrations. Philadelphia: J. B. Lippincott Company, 1897.

The second volume of this fine treatise fully sustains the standard set by its predecessors in being full and up to date, and also in the fact that the articles are written by men who are acknowledged experts in the lines assigned to them.

Such names as Snellen on the Methods of Determining the Acuity of Vision, Gould on the Ophthalmoscope, Jackson on Skiascopy, Javal on Ophthalmometry, Stevens on Muscular Balance, Wilbrand on Perimetry, Thompson on Color Blindness, are sufficient to insure that the subjects treated will be well cared for, and this promise is well fulfilled.

In the first chapter Dr. Snellen writes of the retinal image, the visual angle, the effects of illumination, refraction, accommodation, and correction by glasses, and the various types and other test objects. His son Herman Snellen, Jr., M. D., furnishes the chapter on Mydriatics and Myotics, being a description of the drugs used for these purposes, their origin, dose, method, and time of action, etc. A somewhat brief account but sufficient to fairly cover the subject.

Lateral Illuminations, by L. Laqueur, M. D., University of Strassburg, illustrates the principles and methods of examination by this means, and describes some of the instruments used in combination with it for magnifying the object.

Dr. Gould begins with a history of ophthalmoscopy from its inception, describing the ophthalmoscope in all its phases of

evolution, from Helmholtz' first crude attempt to the present day, with cuts of the various types of the instrument. This is followed by the theory of its action, and the balance of the chapter is devoted to the technique of its use.

Dr. Jackson's contribution on skiascopy is well written but brief, although it covers all the important points of examination by this method.

Ophthalmometry is very fully treated by A. Javal, Jr., the theories of the instruments used for this purpose being explained, and the technique of the examination of the anterior and posterior surfaces of the cornea and the anterior surface of the crystalline lens given, together with the necessary formulæ for computing the various measurements.

Prisms and prismometry receive attention from Dr. William S. Dennett of New York in a well-written chapter covering the practical use of prisms at the present time, although the reader will be satisfied that the theoretical side of the subject is not by any means neglected. Cuts of some of the combinations are presented and their utility demonstrated. The new method of nomenclature is introduced, a table showing the deviation of a given series of prisms by the refracting angle, by centrad, by prism diopres, and by meter angles—Maddox table showing the prismatic effects of decentration will also be found here.

Dr. George T. Stevens contributes an excellent dissertation on his theories respecting muscular balance and the manner of determining deviation from the normal. Cuts are given of the phorometer, the rotating prisms, Maddox rod, the stenopaic lens, and the tropometer, and their use explained. This is the most complete exposition of this subject to be found in any general text-book with which we are acquainted. The finest thing in the book, beyond comparison, is Wilbrand's article on perimetry. The subject is first taken up in its general aspect, the normal conditions of the field for light and color with the methods of examination, and the variations due to pathological action being considered, after which, under a separate head entitled, "special part" the visual tract is divided into (1) the orbital portion (retina, optic papilla, and choroid), (2) the optic nerves, (3) the optic chiasms, (4) the optic tracts, (5) the primary optic centers, (6) the intercerebral tracts leading to the cortical centers, and (7) the visual centers in the cortex of the brain.

Under each of these divisions the effects of disease on light perception, the form of field defects, the nature of the scotomata, central visual acuteness, and color perception are studied, the text being profusely illustrated with cuts representing the various defects as shown on the field chart, and a beautiful colored plate of Henschew's scheme of visual paths being given. The article is masterly and worthy of separate publication as a monograph.

Thirty-seven pages of the book are devoted to color blindness, its statistics and methods of detection, as set forth by Dr. Thompson of Philadelphia.

A valuable chapter, which should be in the hands of all physicians interested in school work and which would be of especial use to the newly appointed school inspectors of New York, is Dr. Risley's article on school hygiene, which takes up the subject in all its phases, giving tables of the defects of vision as found in schools, the significance of certain conditions, the results of proper treatment of refractive errors, the defects as found in many schools as to quantity and direction of light, faulty methods of seating, the dangers of overexertion of the eyes at the near point, of illegible type as found in some text-books; all these factors are considered in their bearing on the pupils' health and vision and the proper methods and conditions under which school work should be done are fully set forth. The section on "Blindness, its Frequency, Causes, and Prevention," by Dr. I. Minis Hugo, is a mass of valuable statistics on this subject, compiled from the records of all countries, and representing the work of some of our ablest observers. The subject is considered from all sides and should be very useful for reference.

The two remaining sections are devoted to antisepsis and bacteriology, the first by Joseph A. Andrews, M. D., of New York; the last by Joseph McFarland, M. D., and Samuel Stryker Kneass, M. D., both of Philadelphia.

Under antisepsis the various up-to-date methods for the prevention of infection in ophthalmic surgery are described and all needful directions given, the concluding chapter describing the micro-organisms of the conjunctiva and lachrymal sac, the methods of culture preparations, staining, reaction, etc., etc. The volume is a good one and leads us to hope for the rapid completion of the work.

DISEASES OF THE EYE AND OPHTHALMOSCOPY. A Handbook for Physicians and Students. By Dr. A. EUGEN FICK, University of Zurich; authorized translation by ALBERT B. HALE, A. B., M. D. With a glossary and 158 Illustrations, many of which are printed in colors. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut Street, 1896. pp. 488.

In his preface the author states that the best text-books are too exhaustive and his intention has been to furnish a compactly written book, "a book that would present the connection of things, the whys and wherefores." We think that the reader will agree with us that he has in a great measure succeeded in his design; the volume could be well termed the essentials of ophthalmology, as the ground covered is extensive, many things being touched upon which are not found in some pretentious works, but everything being short and to the point, only essentials being given.

The anatomy is very brief, yet somehow the reader gains a very fair idea of it; pathology is only given in sufficient degree to furnish necessary explanations in the descriptions of the various diseases, but the trained ophthalmologist will find that much of what he values in this branch is present, in one form or another; the author has such a happy faculty of saying much in a few words that every page counts.

Refraction is divided into two parts; in the first part (found early in the text) the physiological conditions causing the various anomalies are briefly but clearly explained; later on, under a separate head, the clinical conditions resulting are taken up and treatment considered.

The chapter on ophthalmoscopy is excellent, the theory is concisely presented, many practical hints are given and the estimation of refraction both by the direct and skiascopic methods is lucidly explained. The differences between follicular conjunctivitis, trachoma, tubercular conjunctivitis, and spring catarrh are so handled that the reader obtains a clear picture of each without the infliction of an abstruse dissertation on pathology, and yet when he has finished he has a fair idea of the latter. The author is quite exact in his use of terms, in one case however differing from at least American ophthalmologists in the fact that he includes under anisometropia the condition usually termed antimetropia, *i. e.*, where one eye is plus and its fellow is minus in refraction.

He prefers the combined operation in cataract on the ground of its greater safety, considering that the patient should not be subjected to the risks involved in the simple method for the sake of its possibly brilliant results. He says a good word for the Pagentecher method, volunteering the information that the few extractions in the capsule that he has made have furnished some of his most satisfactory cases. He offers no personal theory of glaucoma, which is modest for one of his nationality, but notes that "Schoen after years of study and investigation ascribes glaucoma to over-exertion of the accommodation," saying nothing however of Priestley Smith's work of long ago, which probably laid the foundation for this theory, an omission which is not uncommon with German authors.

The book is a good one; the student will find it especially so in its freedom from verbiage. The translator has done himself great credit and the work of the publisher is almost faultless, the illustrations being especially deserving of commendation.

DISEASES OF THE EYE. By N. L. MACBRIDE, M. D., O. et A. Chir., Dean of the College of the New York Ophthalmic Hospital; Professor of Ophthalmology in the College of the New York Ophthalmic Hospital, etc., etc. New York: Boericke, Runyon & Ernesty, 1897.

This book is intended for the general practitioner, and being, like the author, intensely practical, contains only such matter as will be useful to the general practitioner, expressed in as few words as possible. Those who, in common with the writer, have the pleasure of Dr. Macbride's acquaintance, will expect to find very little theory in the present volume, and the expectation will be fully realized. It contains mainly the results of the actual experience of the author as a surgeon of the New York Ophthalmic Hospital of many years' standing, years which have been devoted to careful work and accurate observation.

Sufficient anatomy of the various tissues for the purpose in view will be found interspersed throughout the book, the anatomical description of each part preceding the chapters on its diseases, and whatever is given is correct and up to date.

The descriptions of disease are very brief and concise, presenting only established facts, whether as to symptomatology or pathology, and only so much of these as may be necessary for the physician in actual practice. The statements as to exami-

nation and treatment, both hygienic and medical, are precise, and leave nothing to the imagination. The drugs are few, being confined to those which have been verified in the practice of the author, and even the potency which he has found most useful is recorded.

The portion covering the anomalies of refraction and accommodation contains much useful information in a very small space, and is very clear and readable.

A short chapter contains a general *résumé* of the more important operations, and the technique, antiseptic measures, etc., necessary in their performance. The paper, presswork, and binding are good; the woodcuts might be improved, but the colored lithographs of the fundus are excellent. The work is what it purports to be, a practical record of personal experience.

THE EYE AS AN AID IN GENERAL DIAGNOSIS. A Handbook for the use of Students and General Practitioners. By E. H. LINNELL, M. D. Philadelphia: The Edwards & Docker Co., 1897.

This is a thoroughly scientific and valuable work in all its parts, and its admirable arrangement and excellent index will make it very useful not only to the general practitioner, for whom it was written, but to the specialist as well. A generation spent in the practice of general medicine, a thorough education in ophthalmology, wide reading, and careful and accurate habits of observation combine to make of Dr. Linnell a peculiarly well equipped man for the performance of the task which he has so ably accomplished.

The book is divided into three principal parts, the first presenting the "Eye Symptoms of Nervous and Constitutional Diseases." In the six chapters found under this division all the important symptoms of the various diseases of the eye due to these causes are given in the most concise manner consistent with a thorough treatment of the subject; the anatomy and pathology finding a place wherever necessary or useful, the ophthalmoscopic appearances of the fundus, the normal conditions of the visual field, with the pathological variations and their causes, and finally a "Tabulated Statement of Disease with More or Less Characteristic Eye Symptoms," in which the essential points can be taken in at a glance.

Part second, entitled "Reflex Neuroses," considers the subject

from two points : first, general functional disorders which are reflexes of ocular affections ; second, functional eye disease due to irritation transmitted from other organs. The first of these divisions is entirely neglected by Knies in his work on the same subject. In the present volume both are ably treated in the briefest possible space.

Part third covers the toxic amblyopias, the ocular affections caused by poisonous substances, either medicinal or otherwise, including those found or generated in food products or resulting from prejudicial occupations. The work throughout must be characterized as excellent, and it will fill a place entirely its own.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY, being a Yearly Digest of Scientific Progress and Authoritative Opinion on all Branches of Medicine and Surgery, Drawn from Journals, Monographs, and Text-Books of the Leading American and Foreign Authors and Investigators. Collected and arranged with Critical Editorial Comments by J. H. Baldy, M. D. ; Chas. H. Burnett, M. D. ; Archibald Church, M. D. ; Arthur H. Cleveland, M. D. ; Colman W. Cutler, M. D. ; J. Chalmers Da Costa, M. D. ; W. A. Newman Dorland, M. D. ; Louis A. Duhring, M. D. ; Virgil P. Gibney, M. D. ; Homer W. Gibney, M. D. ; Henry A. Griffin, M. D. ; John Guitéras, M. D. ; C. A. Hamann, M. D. ; Howard F. Hansell, M. D. ; Barton Cooke Hirst, M. D. ; E. Fletcher Ingals, M. D. ; W. W. Keen, M. D. ; Henry Leffman, M. D. ; Henry G. Ohls, M. D. ; Hugh T. Patrick, M. D. ; William Pepper, M. D. ; Wendell Reber, M. D. ; Daniel Riesman, M. D. ; Louis Starr, M. D. ; Alfred Stengel, M. D. ; G. N. Stewart, M. D. ; Thompson S. Westcott, M. D. Under the General Editorial Charge of Geo. M. Gould, M. D. Profusely Illustrated. Philadelphia : W. B. Saunders, 925 Walnut Street, 1897.

This, the second issue of this valuable work, appears in an improved form as compared with the volume of 1896, and is a handsome production of some 1257 pages with a copious index ; well printed in clear type on good paper and substantially bound.

In the preface Dr. Gould announces that few changes have been made in the editorial staff, notably the substitution of Dr. Duhring on skin diseases, the former editor, Dr. Hardoway, being unable to continue. The very first statement in the book, that relating to the difficulty of establishing an absolute diagnosis in typhoid fever, strikes us as exceedingly timely, as during the past winter we have heard it remarked by eminent physicians that it seemed as if very little advance had been made in this direction

in many years, and that the multiplicity of tests and signs served many times only to confuse.

In the section on surgery a new antiseptic is mentioned which should be very useful if all that is claimed be true. This agent is loretin, which is an odorless crystalline powder, much superior to iodoform. It is used as a dusting powder, as collodion, in pencils, as ointment, or in gauze. Causes no irritation of the skin, destroys all fetor instantly, will prevent suppuration in large wounds, and is absolutely non-toxic.

One hundred and forty pages of the volume are devoted to a *résumé* of the progress made in diseases of the eye, ear, nose, and throat, and these pages are filled with matter of great interest to the specialist in these branches. Under the "General Epitome," it is noted that the intimate nature of the anatomy of the retina is much better understood as the result of the latest silver and gold methods of staining. The light impression has been accurately traced by one investigator.

Deutschman's migration theory seems to be losing ground. The pathology of glaucoma remains at a standstill, as does the battle between the advocates of the simple and the combined operation for cataract.

The tendency in anomalies of the extrinsic ocular muscles is toward less operating and more gymnastic exercise—and properly so, in our opinion. The opinion is expressed that the application of the Röntgen rays to ophthalmology has been practically demonstrated, and that this discovery will be put to greater use as time and additional experimentation shall render us more familiar with the proper methods.

Ophthalmologists are gradually coming around to the opinion first expressed by the late Dr. George S. Norton, the former editor of the JOURNAL, as to the necessity for the correction of small degrees of astigmatism—thus Mittendorf reports four thousand cases of headache that were relieved by the correction of optical defects, of which in fifty per cent. of the cases the ametropia consisted of very low degrees of hyperopic astigmatism.

The recommendation is made that in all cases of headaches the eyes should be carefully examined under mydriasis in persons under forty years, and in a footnote, the editor states that in most cases the limit should be extended up to fifty years of age, an amendment in which we heartily concur, having demonstrated the correctness of the theory upon a large number of cases during

the last few years. We must however disagree with the editor in his opinion, expressed in another footnote, that astigmatism, against the rule, is *not* more common after forty-five years than earlier in life. We have found astigmatism, against the rule, in elderly people to be exceedingly common. Mittendorf affirms his belief in the value of the quarter-dioptre cylinder, which in our experience is entirely beyond question, and claims that in a certain proportion of cases even the eighth-dioptre cylinder is appreciably beneficial, in which statement we again most emphatically agree with him.

Coe reports excellent results in pterygium, by simply touching the apex with the actual cautery.

Fage reports a case of iritis of nasal origin.

Abadie reports a case of vitreous hemorrhage in both eyes in which internal treatment for several months was without effect in improving vision. He finally penetrated the vitreous of the left eye with a very fine platinum-pointed needle connected with the positive pole of a galvanic battery, the negative pole being applied to the arm, passing a current of three or four milliamperes for five minutes. On the following day the patient could count fingers, and vision improved until he could read names and numbers on houses. The eye not treated remained without qualitative perception of light.

Vitzon, after the removal of the occipital lobes of a monkey, observed that the animal began to notice objects again (with much difficulty) about four months after the operation, indicating regeneration of the destroyed section of the brain.

Hessler strictly forbids all syringing in acute cases of suppurative otitis, the discharge being removed by means of cotton. Inflation of the tympana in the acute stages is also strictly forbidden, as this procedure may produce further infection from the naso-pharynx.

The section on brain complications resulting from chronic aural suppuration contains valuable matter, but space will not permit of its presentation.

Gillette has found a teaspoonful of hydrogen-dioxide injected into the nares a valuable remedy for epistaxis. If the remedy be injected during operations, the field may be immediately cleared by the patient blowing the nose.

Schadewald reports a case of laryngeal ulcer healed by rubbing creolin into the body vigorously.

Bergengrün reports seven cases of tuberculosis laryngitis cured by general treatment and lactic acid and iodoform locally.

Whalen cured a case of ulceration of the larynx with a spray of guaiacol in oil of sweet almonds, beginning with twenty per cent. and increasing to fifty per cent. The ulceration was completely healed in less than two months, all swelling disappearing at the end of ten months. Five years later the larynx still remained normal.

This work seems to be equally complete in all departments, and every physician will find much in it of value. The publication of this, the second, volume indicates that the venture has been successful, and we hope that it may be continued indefinitely.

DISEASES OF THE EAR, NOSE, AND THROAT, AND THEIR ACCESSORY CAVITIES. A Condensed Text-book. By SETH SCOTT BISHOP, M. D., LL.D., Professor in the Chicago Post-Graduate Medical School and Hospital; Surgeon to the Illinois Charitable Eye and Ear Infirmary; Consulting Surgeon to the Illinois Masonic Orphans' Home and to the Silver Cross Hospital of Joliet; Formerly Surgeon to the South Side Free Dispensary and to the West Side Free Dispensary; Member of the International Medical Congress, The Pan-American Medical Congress, The American Medical Association, The State Medical Societies of Illinois and Wisconsin, The Chicago Pathological Society, etc. Illustrated with 100 Colored Lithographs and 168 Additional Illustrations. One Volume, Royal Octavo, pages xvi+496. Extra Cloth, \$4.00 net; Sheep or Half Russia, \$5.00 net. Philadelphia: The F. A. Davis Co.

This book, according to the preface, is intended for students and general practitioners, but some portions of it are quite worthy the attention of the specialist. The chapters on the diseases of the mastoid process and mastoid operations may be instanced as particularly excellent, as to conciseness, clearness, and in the value of the contained illustrations, those representing the author's specimens being especially noteworthy. Considering the size of the work the subjects considered are well covered, especially so as certain subjects have been allotted space out of proportion as usually found in text-books of this character. Thus about forty-five pages are given to diphtheria, a very full *résumé* of the present status of serum-therapy being included under this head. Much space is also covered by the article on hay fever, in which the author differs from some of his colleagues both as to pathology and treatment, and he naturally ventilates his ideas on the subject pretty thoroughly, and supports his thesis ably.

A large number of instruments are described and illustrated, many of them being Dr. Bishop's modifications. The book is well up to date, in technique especially, the uses of instruments and local applications of all kinds being carefully laid down; special attention being given to new and improved methods in this connection, particularly in the section on the nose and throat. The work is compact, well written, and contains a large number of illustrations which are mostly excellent and many of them uncommonly so.

EYE-STRAIN IN HEALTH AND DISEASE. With special reference to the amelioration or cure of chronic nervous derangements without the aid of drugs. By AMBROSE L. RANNEY, A. M., M. D., Author of "Lectures on Nervous Diseases," "The Applied Anatomy of the Nervous System," etc., etc.; Late Professor of Nervous Diseases in the Medical Department of the University of Vermont and of the Anatomy of the Nervous System in the New York Post-Graduate Medical School, etc. Illustrated with 38 Woodcuts. One Volume, Royal Octavo, pp. viii + 321. Extra cloth, beveled edges, \$2.00 net. Philadelphia: The F. A. Davis Co., Publishers.

This book is well worth the time spent in its perusal. Dr. Ranney is one of the few men in this department who follow Dr. Steven's methods to their extreme limit, and while many may differ with him at the present time, it is quite as possible that this difference exists from lack of investigation on their part as from error on his.

Many oculists who accept the general conclusions of advanced thinkers in this special line at the same time reject their deductions and methods in part—as in the case of the development of latent muscular disturbance and the like. They may be right, but it must be remembered that all new theories have been divided, and if a man would condemn the opinions of others, he must acquire the right so to do by becoming possessed of a sufficient knowledge of the subject under discussion to be a capable judge. It is our experience that of those who habitually deride Dr. Stevens and his disciples few, if any, have sufficiently studied the subject to give an opinion founded on absolute knowledge—few have commonly made the numerous and delicate tests which alone furnish the required information. Some are scarcely capable of properly handling the instruments which have been invented for this purpose. For the oculist who desires to study this branch of work there is much of interest in this volume. In

the first place the author describes with great nicety the numerous tests for abnormal conditions. He pays special attention to the small details, which are so important in all these cases. Many cases from practice illustrate not only the methods used but the possibility of relief or cure of some otherwise troublesome conditions by giving proper attention to the eyes. Headache, neuralgia, chorea, sleeplessness, dyspepsia, epilepsy, nervous prostration, and insanity are some of the conditions studied.

Chapter IX. contains a catalogue of "don'ts," many of which are well worth the consideration of those interested in this subject. A few of them will serve as a sample :

"Don't think every case is an operative case."

"Don't fail to always determine the refractive errors of each patient early and with care."

"Don't operate until the patient shows consistent tests."

"Don't attempt to guess at refraction by means of the ophthalmoscope, retinoscope, or Javal's ophthalmometer, to the exclusion of a surer method—viz., a mydriatic and trial lenses."

"Don't make muscular tests without the glasses that have been prescribed to correct errors of refraction."

"Don't regard any eye problem as simple."

PHARMACOPŒIA OF THE AMERICAN INSTITUTE OF HOMEOPATHY.
Published for the Committee on Pharmacopœia of the American Institute of Homeopathy. Boston : Otis Clapp & Son, Agents, No. 10 Park Square, 1897.

This handsome volume of 674 pages is the result of the labors of the committee appointed by the American Institute to prepare a work on the preparation of homeopathic remedies, which should have the authority of the national body of the school in the United States and set at rest, so far as possible, the differences of opinion which have hitherto obtained on this most important subject.

In the preface the committee states that it "desires to lay special stress upon the general unanimity with which this work has been brought to completion, and to emphasize the fact that it is not the expression of the views of a bare majority of its members, but that, on the contrary, it represents their consentient opinions to a most gratifying degree," upon which fact the committee and the profession are to be congratulated.

Over seven hundred remedies are represented, their origin, synonyms, description, history, and exact direction for preparation being given.

In Part III. will also be found the signs and abbreviations used in prescription writing, tables of weights and measures, the metric system and its equivalent, a table of atomic weights, and a complete list of the names of remedies and the proper pronunciation of each. This work has been badly needed and seems to be entirely thorough and practical.

PRACTICAL HANDBOOK OF THE DISEASES OF THE EYE. By D. CHALMERS WATSON, M. B., C. M., Ophthalmic Surgeon, Marshall Street Dispensary, Edinburgh, etc., etc. With nine colored plates and twenty-four illustrations in the text. New York: The Macmillan Co. Edinburgh: William F. Clay, 1897. pp. 236. Price \$1.60.

We have no hesitation in saying that this is the most compact little book that has appeared on the subject for a long time. The object of the author has been to give the salient points of each condition touched upon—and very few are omitted—in as few words as possible, and he has succeeded to a remarkable degree. The entire field is covered, including refraction and operations, and while the text is necessarily very brief it is very much to the point, and not a word is wasted. The writer is thoroughly familiar with his subject, and the result of his work will be valuable to the beginner in ophthalmology. The plates are excellent and the general style and get-up of the work could hardly be improved upon.

RETINOSCOPY IN THE DETERMINATION OF REFRACTION AT ONE METER DISTANCE, WITH THE PLANE MIRROR. By JAMES THORINGTON, M. D. Twenty-four Illustrations. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut Street, 1897.

We most emphatically recommend this little book to the beginner in the study of this method of determining refraction. The title is an index of the character of the text. It is positive, exact, practical. The aim of the author has been to present facts, and in as small space as possible. He has succeeded absolutely. The average work on this subject is, to the beginner, somewhat confusing, from the amount of theory presented—theory which is not always clear to the student. This has been avoided in the present case. Little, if any, theory is included and the monograph is a series of categorical statements, clear, precise, and sufficient. After learning *how*, thoroughly, it is time enough for the student to learn *why*—in Jackson's work. This book will certainly teach him *how*.

THE JOURNAL OF OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY.

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A CASE OF MYOPIA: OPERATION; IMPROVED VISION.

ELMER JEFFERSON BISSELL, M. D., ROCHESTER, N. Y.

THE extraction of the crystalline lens for high degrees of myopia involves so many important questions that further discussion of the subject may still be profitable. I have selected the following case as well illustrating certain elements which have seemed to me essential in deciding for or against this operation:

Miss C., aged nineteen years, consulted me last June regarding her eyes. She was in good health and for several years had been employed making kodak cases. This occupation required fairly good sight, and she complained that she could not continue the work unless glasses could be procured to give her better vision. She was using O. D. -13 , O. S. -12 . She had worn glasses since ten years of age, changing them a number of times and with each succeeding pair taking stronger lenses to improve her failing vision. I recorded the following at the time of my first examination:

Javal, O. D. ± 1 . axes 80° , 170° .

O. S. ± 1 . " 105° , 15° .

Retinoscopy, O. D. $170^\circ = -19$. D. ; $80^\circ = -20$. D.

O. S. $15^\circ = -17$. D. ; $105^\circ = -18$. D.

V. O. D. counts fingers, with -20 . V. $= 20 - 200$ (?)

V. O. S. $1 - 200$, , with -15 . V. $= 20 - 70$.

The fundi showed only very slight myopic changes. I advised the extraction of the crystalline lens of the right eye first (this being the poorer eye). She consented and on June 10, at the hospital, I made a cross (+) laceration of the capsule and then penetrated the center of the lens with the needle, very slightly disturbing its substance. The pupil was kept dilated and in a few days she resumed her work using, of course, only the left eye. For two months the lens substance kept slowly passing into the aqueous. On August 10 I made a sufficiently large corneal incision with a keratome to completely remove all of the remaining opaque lens, and with the capsule forceps extracted the capsule. Two weeks after the operation I recorded the following result :

Javal, ± 1 . axes 80° , 170° (same as before the operation).

Retinoscopy, $170^\circ = +1$

$80^\circ = \text{normal}$.

V. 20 - 50, with $+1$. axis 85° , V. = 20 - 40 ; and with $+3$. \odot
 $+1$. axis 85° reads Jaeger No. 2.

I ordered lenses as thus indicated, and with them she reads and is continuing her work while the left eye is undergoing treatment.

Some of the factors in the surgical treatment of myopia as suggested by this case are :

The Age of the Patient.—Patients operated upon between ten and twenty-five years of age give the best results. It is rare to find under ten years of age myopia of sufficient amount to warrant an operation ; and in those older than twenty-five, either the myopia has stopped increasing or the changes at the fundus contra-indicate an operation. Some have placed the limit at forty, others at fifty years, but this is purely arbitrary. The fact is, that rarely would a patient past thirty years of age submit to an operation if the myopia were stationary, as he would have become accustomed to his condition.

The Acuteness of Vision.—I deem it important to carefully consider this feature of every case. If a patient with a high degree of myopia can wear with comfort the correcting lenses and secure fair acuteness of vision, I should not operate. Unfortunately, however, some patients find that

glasses do not sufficiently improve their sight to enable them to pursue with ease the duties of life. This was true of the case cited, and I consider such a condition as one marked indication for the operation; especially if the case gives a history of gradually failing vision.

Condition of the Fundus.—Unless the retinal and choroidal changes are very pronounced, I should not hesitate to operate if other things were favorable. The greater the changes, the less improvement there will be in the vision, but it is in just these extreme cases that any improvement is to be desired. The liability of retinal hemorrhage or detachment has been greatly exaggerated. Late statistics certainly show that it is less frequent than prolapse of the iris in ordinary cataract extraction, and undoubtedly, in some of the cases recorded, it would have occurred even if the operation had not been performed; for we must bear in mind that only in cases most liable to such accidents is the operation undertaken.

Perhaps the most important part of the subject is the effect the operation has in arresting the increasing myopia and accompanying choroiditis. We must consider this question fairly. The above case does not aid us in determining this point, as sufficient time has not elapsed; but from other cases I am convinced that the operation is a positive benefit. Not that every case is improved any more than every cataract operation is a success, but a fairly good proportion secure permanently improved vision, and an arrest of the progressive myopia. Those who have operated most are unanimous on this point. Even if it did not stay the progress of the myopia, certainly the acuteness of the vision is greater with the lens removed.

Amount of Myopia.—The above case shows that the myopia was reduced 20 D. and the astigmatia remained unchanged. If there had been no astigmatia the resultant refraction would have been normal for distance. Some operators remove the lens for 10 D. in youth and 12 D. in adults. I am inclined to place the indication for operating at 14 D. or more, and the higher the degree of myopia the

more surely should I feel warranted in extracting the lens. The removal of the lens in a case of 10 D. will leave the case so hyperopic that I see no advantage in operating unless there is positive evidence that the lens cannot be safely removed with as good vision at some future time, if the myopia increases. It is a great mistake to suppose that every case of 10 to 14 D. of myopia is hopelessly passing on to a larger amount, with vision approaching blindness.

The Refractive Power of the Crystalline Lens.—This operation for myopia has greatly increased our interest in the refractive power of the crystalline lens. The well-known fact that emmetropic aphakia after cataract extraction requires a lens of only 10 D. for distant vision, while the removal of the crystalline lens in myopia lowers the refraction 16 to 18 D. and at times 20°, as in the above case, seems to some, at first, inconsistent. The refractive power of the crystalline lens has been variously estimated at from 14 to 17 D. If we estimate it at 16 D. this is in accord with the fact that a + 10 D. cataract-lens (placed as it usually is about 15 mm. in front of the normal lens) gives the same result as a crystalline lens *in situ*. It is therefore not necessary to suppose that the myopic lens is always more convex or has a higher degree of refraction than is found in other eyes, although these factors and a forward displacement of the lens may be causes of non-axial myopia. Again, it is not entirely unreasonable to suppose when a lowering of refraction of 20 D. occurs by removing the crystalline lens, that the result is due to conditions not wholly resident in the lens itself.

The Acuteness of Vision.—Changes at the fundus will necessarily influence the amount of resulting vision, yet there are patients, like the one reported, where the acuteness of vision is much greater than was obtainable by strong myopic lenses. This acuteness of vision after an operation must be due to factors other than the simple diminution of the amount of myopia. It is readily explained by the enlarged retinal image, the greater intensity of light, and the less dispersion of light.

Method of Operating.—In the main most operators first needle the lens, then at a varying period extract it, and finally do a secondary capsulotomy. The different steps of the completed operation are susceptible of great variation. One reason for reporting the above case is that it illustrates what seems to me the best method.

The discission operation, as performed, allows the lens to slowly undergo absorption. I do not perform the second operation of extracting the remaining lens substance until the absorptive process has apparently ceased. By so doing I believe there is less liability of retinal hemorrhage or detachment. When the patient is tractable, rendering it possible to do delicate work, I extract the capsule at the time of the second operation, and thus not only avoid the third operation but secure a clearer pupil than is usually obtainable by a capsulotomy at a later date.

PHONO-FARADIC MASSAGE BATTERY FOR TREATMENT OF AURAL CASES.

HENRY C. HOUGHTON, M. D., NEW YORK CITY.

IT is now more than four years since aural massage by sound came to anything like a general application. During that period, as you are well aware, I have devoted a great deal of attention to experimenting with various devices for the purpose of making aural massage as simple in details of application and as satisfactory in results as is general massage. Almost all cases of aural disease are benefited by it; indeed, as originally suggested, "what general massage is to the body, local massage is to the ear." The only cases in which it would seem to be inapplicable so far as hope of increasing the range of audition is concerned—are those in which there is an osseous ankylosis of the stapes, a condition concerning which it is not easy, at all times, to make positive diagnosis; even so, in a number of such cases, the modification of subjective conditions has been remarkable, so that the aurist, or the skilled general practitioner is warranted in using the method for the relief of his patient, at least in a tentative way.

The usefulness of the method having been demonstrated, there has arisen a demand for some simple, comparatively inexpensive instrument for aural massage. Some time since, the Waite & Bartlett Manufacturing Company, of this city, made for me an instrument in which the diaphragm of a telephone was made to vibrate a column of air in contact with the membrana tympani, through a closely fitting stethoscope. This not only modified the subjective noises, in a large number of cases, but was influential, in

my judgment, in increasing the auditory range for all sounds.

In a somewhat extensive study and application of electricity, in its various forms, by the means of electrodes in the auditory canal, upon the tongue, and through the nares for reaching the eustachian tube and middle ear, I long since gave preference to the faradic form of electrical energy; and in March, 1894, the Waite & Bartlett Company made for me a binaural electrode by utilizing the stethoscope with metallic tips to which was connected a wire passing through the rubber tubes to the Y, and passing out there to a single terminal, to which one can connect any form of flexible electrode. This form may be of such a nature that it can be applied to the tongue, through the nares to the mouth of the eustachian tube, or to the back of the neck for general faradization. By this means, the faradization of the naso-pharyngeal tract was made simultaneous with the vibration produced by the vibrometer, phonograph, or organ.

My interest in this somewhat novel field was rather intermittent on account of special interest in the study of musical vibrations. But it was renewed and intensified at the meeting of the National Society of Electro-Therapeutists, last September, in this city, when my esteemed colleague, Wm. R. King, M. D., of Washington, D. C., read a paper on this subject, which delighted me, saying that he had obtained similar good results. Since then I have had the skilled advice of Dr. H. E. Waite, while I have experimented with various forms of mechanism for producing electrical vibrations synchronous with the sound vibrations caused by the diaphragm of a Bell telephone. This study has matured in the form of the present instrument, which consists of a special device, the creation of Dr. Waite, for producing slow and rapid vibrations of a metallic diaphragm by means of the same current which, passing through the helix, generates the secondary current in the faradic apparatus. Hence, the patient has, synchronously, the sound impulses through the stethoscope and the electrical impulse from the coil of the battery.

I can only infer from previous experience that this will prove a practical instrument for the general practitioner, and, where the specialist can control his patient, for a limited lay use. Trusting that we may not be disappointed in our anticipations, I commend the device to the consideration of my colleagues.

In this connection, it may be well to give the conclusions reached by the use of various instruments since March, 1892. In *otitis media catarrhalis chronica*, with the drum-head thickened, retracted, the ossicula more or less rigid, but with probable freedom of the stapes in *fenestra ovalis*, there is reason to expect increased mobility of the mechanism, and thereby, a greater range of audition. At the same time subjective sounds, due to changes in labyrinthine pressure, are modified. In cases of catarrhal disease following suppurative disease, the drum-head perforated, or lost, to a greater or less extent,—with the usual results of suppurative disease in the form of dried secretions, rigidity of the mechanism, and so forth,—remarkable results may be obtained in the relief of subjective conditions and improving the range for voice, music, and irregular tones. In chronic suppurative otitis, the indolent condition can be overcome and repair hastened. Also, the tissues are more amenable to massage, just as a case may be passing from the subacute condition to the catarrhal form which supervenes upon the suppuration.

These facts appear to be well established. Not only so, but in cases of chronic catarrhal disease, in which the auditory range is not increased for modulated tones, regular (musical) or irregular (noises) vibrations, the patient is often relieved of discomfort, undoubtedly due to modification of resonance of the entire head. This is easily explained when one realizes what general massage does for other parts of the body. The circulation of the temporal bone, the superior maxillary, indeed, of the entire bony frame of the brain and nerves, is modified in a similar manner. The combination of the faradic electricity with the sound vibration must necessarily increase the therapeutic range of massage.

CROUPOUS RHINITIS; PSEUDOMEMBRANOUS RHINITIS; OR, NASAL CROUP.

BY G. S. PECK, M. D., DENVER, COLO.

SINCE preparing the clinical report herewith given, in which the following statement was made, "There seems to be but a limited literature upon this subject, the most being given in 'Diseases of the Nose and Throat,' by Ivins," a report of 120 cases collated by Dr. James T. Campbell of Chicago, and given in No. 3, vol. vi. of "Annals of Otology, Rhinology, and Laryngology," probably sums up all the current literature on the subject.

The fact that there is such a limited literature would indicate that the disease is not very common, or is diagnosed as something else. Dr. Campbell says it "is an affection of somewhat frequent occurrence, though rarely mentioned in current literature." Ivins says, "Judging from the very infrequent reports of croupous rhinitis, it might be concluded that it is a very rare affection, but doubtless many cases are overlooked owing to slight constitutional and local symptoms, which often accompany it. According to Potter it occurs in about two per cent. of all cases of acute rhinitis, but I have seen only two undoubted non-traumatic cases."

The disease is, most likely, of bacterial origin. Examination of 80 of the 120 cases reported by Campbell showed the Klebs-Löffler's bacilli present in 65. Unfortunately, in my own cases, as is explained later, we did not secure cultures, or even a cover-glass examination. A considera-

tion of the clinical picture herewith given fairly well represents the general symptomatology of the cases:

Some time since, Miss L., æt. ten, was referred to me by Dr. C. N. Hart of this city, for treatment for a nasal difficulty. History of the case was as follows: For a week previous, patient complained of general malaise, fever, restlessness, and extreme nervousness, sore throat, stopped nose, with watery, acrid discharge, excoriating the edges of the nostrils and upper lip; some headache, and much weakness and prostration. Examination disclosed the complete occlusion of the right nostril by a whitish substance which at first suggested a mass of thickened mucus covered by a glairy, watery secretion. The mucous membrane was exceedingly tender to touch, and bled upon slightest contact of the probe. When the mucous was wiped away, there was found a fibrinous exudation, forming a membrane, attached to the septum, very adherent and completely blocking the nostril. The probe was very gently insinuated between the septal wall and the membrane, gradually separating the mass back for more than an inch. It was attached to the entire vertical length of the septum, and extended back about two-thirds of its horizontal length. The membrane, when removed, was one and a quarter inch long, about three-fourths of an inch wide and from a sixteenth to an eighth of an inch in thickness. It was fully organized membrane, such as is thrown off from the larynx in membranous formation there.

After removing it, the mucous membrane bled some, was very angry in appearance, and suggested the condition seen in the throat after removing diphtheritic exudations. Farther back in the nostril was a quantity of membrane more or less broken down, and much more easily removed, although filling the nostril back to the pharynx. The left side was free from exudation, although there was some mucous discharge.

The close resemblance to a nasal diphtheria led me to go more fully into the previous history and general symptoms present at that time than I should ordinarily have done.

The temperature was 101.5° F., pulse 125, weak and irritable, as is found in diphtheria after constitutional symptoms are marked; patient felt very weak and nervous, no appetite, some soreness of throat, haggard appearance, eyes dull, and all the symptoms suggesting marked general infection.

As may be suspected, my diagnosis was very guarded. It happened there were some changes being made in the health department, and a culture was not obtainable. There being no re-formation of membrane the following day, and having had time to read up, a diagnosis of croupous rhinitis was made. The subsequent course of the disease confirmed the diagnosis.

It was nearly two weeks before the nostril was entirely free from membrane and the temperature returned to normal, although the pulse continued rapid, and the heart action weak, and the nervous symptoms were pronounced for more than a month.

Treatment was directed to local cleansing and spraying with hydrogen peroxide, and a eucalyptus-menthol-glymol spray, and the internal administration of arsenicum iod., nitric acid, and later still, kali bich.

While this condition is supposed to be, generally, non-contagious, in this family a younger brother had a similar attack come on about a week after the first case developed, but it was much milder, and of shorter duration than in the case of the girl. In this there was some membranous formation and some fever, with a slightly quickened heart action. The same treatment was pursued in this as in the former case.

The infectious nature of this disease seems to be unsettled, but undoubtedly many cases are purely diphtheritic in type, and care should be exercised in treating it, to prevent its spreading to other people.

ASTIGMIA, NOT ASTIGMATISM.

JOHN L. MOFFAT, M. D., BROOKLYN, N. Y.

IN the March, 1895, number of the *Annales d'Oculistique* (English edition) Dr. Georges Martin suggests the use of the words astigmia, instead of astigmatism, and astigmatic, instead of astigmatic.

At some date between 1825 and 1846, Mr. Airy, in England, described the condition of his eye to Rev. Dr. Whewell, who proposed for it the term astigmatism—from α , privative, and $\sigma\tau\acute{\iota}\gamma\mu\alpha$, a point. This term has been accepted by the scientific world; the only authority that does more than give it unquestioningly is the Century Dictionary, which says: "The late eminent scholar, Dr. Whewell, who had originally suggested the term astigmatism, approved astigmism as being etymologically the better word."

$\sigma\tau\acute{\iota}\gamma\mu\alpha$, $\alpha\tau\omicron\varsigma$, means a puncture, or point in the sense of point of an instrument.

$\sigma\tau\acute{\iota}\gamma\mu\eta$, $\eta\varsigma$, which signifies a point in the sense of a mathematical point, is the proper term to use when speaking of a focus or luminous point; and as an eye with this deformity cannot focus to a point parallel rays or rays emanating from a point, manifestly the English name for this condition should be derived from $\sigma\tau\acute{\iota}\gamma\mu\eta$ —by the termination *ia* (astigmia) as the word *aphonia* comes from α and $\phi\omega\nu\acute{\eta}$.

Such scholars as I have been able to consult agree with those to whom Dr. Martin referred this question, and Dr. Whewell himself stamped the new word with approval.

The object of this paper is to call your attention to this matter and to enlist your services in the reform. Although habit may be strong, it will prove easy (if we are really interested), not only to use the new words ourselves, but upon every proper opportunity to teach our patients, fellow-practitioners, nurses, and the opticians the correct terms.

The medical profession used to be regarded as one of the learned professions: the recent efforts to elevate the standard of medical education have been inspired and sustained by the desire to restore this lost dignity.

Animated by this spirit, let each of us bear in mind the fact that in just so far as a medical man (or woman) shows himself scholarly does he elevate and dignify the profession and make it worthy of the term "learned."

NOTES UPON THE OPERATION FOR CATARACT.*

BY DR. JULES MUTERMILCH.

*Causes of the inflammatory complications following
the operation of cataract.*

IN determining the causes of the inflammatory complications following cataract operations and means for their prophylaxis, all oculists familiar with the progress of science reason more or less as follows:

At the time of the operation, or even after it, pathogenic parasites enter the wound and pass through into the ocular globe, there to cause an inflammation of the iris, of the ciliary body, or a panophthalmitis; hence, to avoid these grave complications it is important to sterilize the instruments very thoroughly, to bathe carefully—conforming to rules of antiseptic surgery—the conjunctiva, the palpebral border, the naso-lachrymal canal, the operating table, etc., etc. A more exacting physician would think, besides, of properly arranging the operating room, of rounding off its angles.

This point of view, the logical consequence of recent scientific progress, is not satisfactory. There is no doubt, as it appears to me, that the pyogenic parasites are the most important if not the only agent in causing the unfortunate complications in question; nevertheless the efficacy of preventive measures, as generally admitted, appears to me problematical. I am persuaded that even the most

* From cases observed during the service of Dr. Z. Kramstyk in the Israelitish Hospital at Varsovie.—*Annales d'Oculistique*, June, 1897.

rigorous antiseptics of the operative field is insufficient and exercises an influence of little importance upon the final result of the operation.

This opinion is founded upon the observation of a well-known fact, namely, the extreme infrequency of complications following iridectomy. Although in this operation all the conditions favoring the penetration of parasites into the anterior chamber may be identical with those that we encounter in the operation for cataract, although, in the one case as in the other, we make a communication between the surface of the globe and its interior by an opening nearly the same in size, we never have the least sign of inflammation following iridectomy. For my part I have never, in my hospital practice, seen complications follow this operation. It is true that I began my medical career after the application of antiseptic principles to ophthalmic surgery, but it is this which appears strange, inconceivable even: the surgeons who operated before the advent of antiseptics saw no more of panophthalmitis following iridectomy.

I have in mind a number of patients in whom certain conditions favored the development of post-operative panophthalmia. These were, for example, subjects suffering from a serious affection of the conjunctiva or of the lachrymal sac; still the iridectomy which was performed gave only the best results.

On the other hand, it frequently happens that a slight accidental lesion of the iris by a needle, an awl, or some other unsterilized instrument will cause the development of a suppurative iritis or sometimes even a panophthalmia.

These contradictory phenomena can only be explained in the following manner: the opening of the anterior chamber is followed immediately by a flow of aqueous humor at times quite rapid, and it is in this way that the parasites that may have been able to enter by means of an incompletely sterilized knife into the anterior chamber are carried out, while at the same time the liquid bathes the borders of the sclerotic or corneal wound. By excision

of the iris, prolapsed at the time of the operation or seized by the forceps, the tissue, which would become a focus of infection if it had been touched by a non-sterilized instrument, is removed. Further, the instantaneous appearance of the aqueous humor, which flows out as soon as the edges of the wound are free, constitutes an ideal means of disinfection of the tissues which have been exposed to infection at the time of the operation.

All these conditions prevent the post-operative penetration of micro-organisms into the interior of the eye and in the removal of all infectious substances make iridectomy a benign operation.

If in accidental injuries to the iris or in simple puncture of the cornea, the corneal wound is small, closes rapidly, and gives rise to little or no escape of aqueous humor, the danger of a suppurative iritis becomes very much increased. It is probable that this is the reason that an operation as insignificant as the dilaceration of a secondary cataract may be followed by grave inflammatory complications.

Thus, then, in iridectomy we have a current of liquid flowing continuously during a longer or a shorter period of time from the interior of the ocular globe outward. It is also important to add that this operation is more often performed upon eyes in which the intra-ocular tension is augmented. This circumstance is very important, for it facilitates the passage of the aqueous humor into the conjunctival sac and prevents the establishment of a nerve current.

In the operation for cataract accompanied by a diminution in the contents of the ocular globe, that which takes place in an iridectomy, the *expiratory* (*expulsive*) force, so to speak, is markedly diminished. It happens sometimes that the surgeon observes a phenomenon exactly the opposite of what takes place in iridectomy; namely, a manifest tendency of the eye toward *aspiration*. This phenomenon, which leads to the entrance of bubbles of air into the anterior chamber, was observed several times immediately after the flow of aqueous humor. It always

appeared more frequently after the extraction of a cataract. It is in this phenomenon, in this faculty of the eye of absorbing air, and, as is inevitable, the liquid of the conjunctival sac (consisting of a certain quantity of antiseptic fluid which has bathed the conjunctiva, of tears, and of aqueous humor) that the danger of the operation for cataract resides.

In certain cases, which are not very rare, the diminution of the intra-ocular tension is so pronounced that the whole cornea simply gives way, forming a sort of funnel, the apex of which corresponds to the pupil. It goes without saying that in these conditions the edges of the wound are no longer in apposition and the conjunctival sac communicates immediately with the contents of the ocular globe, for the wound appears in the form of a slit, sometimes wide open. It is easy to account for the gravity of the consequences which would be set going by this condition of the cornea. It might be thought that it would be easy to avoid this evil; that it would suffice to bathe carefully and repeatedly the lachrymal sac, the borders of the lids, and the lachrymal canals with an antiseptic solution as energetically as possible, to avoid the inflammatory complications. Nevertheless, this problem, in spite of its simplicity, has not been in any way realized in practice.

The researches of certain oculists (Gayet, Petresco, Franke, and others) have proved that the normal conjunctiva is the seat of a multitudinous variety of parasites, among which the pathogenetic microbes are often encountered. Although it may be easy to kill these micro-organisms upon the surface, it becomes difficult, even impossible, to render them inoffensive at the angle of the conjunctiva. The conjunctival epithelium presents hollows, many and deep, and it is here that the parasites often nestle and shelter themselves from the antiseptics usually applied. Moreover, the corrosive sublimate that we usually employ for sterilizing the operative field exercises an injurious action upon the tissues, and this is why we are constrained to renounce concentrated solutions and confine

ourselves generally to relatively feeble solutions, acting less energetically. Further, the tissues destined to be sterilized are exposed to the action of the antiseptic agent only for a short time, and this for divers reasons.

All these considerations prevent us, evidently, from operating upon the eye under conditions of perfect safety. In this opinion, as I have already announced, I rely not only upon theoretical reasons, but also upon the researches of Franke, who found pathogenetic microbes in the conjunctival sac, even after the most careful disinfection.

The problem of the absolute sterilization of the operative ground can only be realized when we shall be in possession of an antiseptic method which shall join to energy and rapidity of action the faculty of completely soaking all the layers of the conjunctiva, without at the same time producing an injurious effect upon the elements of the tissues.

The penetration of parasites within the eye is not absolutely dangerous, in all cases. This is true even of pathogenetic parasites. It is indisputable that in many cases, for example penetrating wounds of the globe of the eye, the invasion of micro-organisms is successfully combated. Perhaps the irritative symptoms observed even in the post-operative period of certain iridectomies, without apparent reason, represent only the reaction opposed by the internal tissues of the eye to a menacing infection. Altogether, the operation for cataract creates conditions which do not favor resistance on the part of the ocular globe to the invasion of parasites. The débris which remains behind the iris in greater or less quantity, after a cataract extraction, presents an inert body, not only incapable of resisting external agencies, but, on account of its physical and chemical properties, constituting an excellent culture medium for parasites. The pyogenic microbes, which may have penetrated during or after the operation as far as the débris of the cataract, develop very rapidly without encountering the obstacles habitually furnished by the normal elements of the organism. It is then with good reason that certain oculists (de Wecker,

Kramsztyk and others) consider these decomposing particles of the crystalline lens as the probable source of the inflammatory complications of the operation for cataract. It is truly difficult to contest the justice of the point of view. Old surgeons, who operated at a time when antiseptics was not in use, have called attention to the danger menacing the eye on account of the débris of the cataract, because it was very abundant in quantity; but they attributed these complications to the mechanical irritation which accompanies the swelling of this débris.

All these circumstances which we have reviewed impose upon us the necessity of seeking still other means outside of antiseptics, applied within very wide limits, to avoid panophthalmia. These means we find, up to a certain point, in the method and in the operative technique.

We believe in the first place that, by proper management, we can reduce the aspiration at the time of operation to the minimum. It must be remembered that the ocular globe possesses the physical characteristics of an elastic rubber ball. After pressure is made upon the eye, it immediately returns to its spherical shape. When the eye becomes compressed during a penetrating wound, the cessation of the pressure would provoke the phenomena of aspiration on account of the rapid increase in the volume of the eye. The more frequent the pressure, the more the exposure to the introduction into the anterior chamber of the dangerous contents of the conjunctival sac.

Note these important circumstances: that *to effect the expulsion of the crystalline lens, at the most important stage of the operation it is necessary to exert continued and uninterrupted pressure.* It is easily accomplished by pressing the cornea, near the region of the inferior border of the crystalline lens, by means of a spatula or any other appropriate instrument. At the moment when the upper edge of the cataract appears in the wound it is necessary, without diminishing the pressure, to slide the spatula along the surface of the cornea in the direction of the wound until the cataract is entirely free. This done, the pressure is

diminished, not rapidly but, on the contrary, slowly and progressively, and it is by this precaution that we reduce to a minimum the chances of aspiration. The elasticity of the sclerotic renders us marked assistance in the same direction; after the exit of the lens, that is to say, after the notable diminution in the contents of the eye, this membrane, essentially elastic, undergoes a certain contraction and adapts itself to the new dimensions of the ocular globe. If the sclerotic were deprived of this property we would observe, after each extraction of a cataract, a depression of the cornea, a wrinkling of the sclerotic itself, and perhaps also a detachment of the retina.

In normal conditions, the diminution of the contents of the eye, following cataract extraction, is almost immediately equilibrated by the reproduction of the aqueous humor. The lessening of the intra-ocular pressure which leads to wrinkling, or even depression, of the cornea must be attributed in part to the slow re-formation of the aqueous humor due to senile changes in the vascular walls retarding filtration, and in part to the diminished elasticity of the sclerotic tissue.

The second operative stage contributing to the production of aspiration consists in the expulsion of the débris of the crystalline lens by pressure, at regular intervals, upon the cornea through the lid. This method is perhaps the most common, and gives excellent results in the hands of a clever operator; but by these maneuvers the eye is exposed to resorption of the liquid of the conjunctival sac, and this is why this procedure of expulsion of the débris ought to be used as rarely as possible. In cases where a fragment of cataract remains, it is preferable to use the curette, which sometimes needs to be introduced but once.

Concerning the soft cortical substance, it should remain in the eye only in cases where the patient is very much agitated during the operation, or where the corneal incision is too small. These circumstances ought always to be prevented by the surgeon, and they are easily obviated; the suspected patient should be put to sleep, and the incision should be too large rather than not large enough.

Altogether, great attention should be paid to the abundant *débris*, which acts as a cataract which has not arrived at maturity; but in this case the cleverest operator will be able to expel nothing, or almost nothing, by a rhythmic pressure of the fingers.

In following these purely technical principles we have avoided more than once the inflammatory complications of the operation for cataract, due to the aspiratory properties of the ocular globe. If, further, we shall have the means of increasing the ocular tension after this operation, and if we shall be able to hasten the rapid and abundant secretion of aqueous humor, I am convinced that we should never have complications following cataract extraction any more than after iridectomy. Atropine applied before the operation is advantageous up to a certain point. As I have already noted in my work "*Operation for Cataract upon the Atropinized Eye*," * the opening of the anterior chamber is followed by an energetic contraction of the pupil previously contracted; this phenomenon is due to the rapid afflux of blood and of lymph in the vessels previously contracted to the maximum, on account of the contraction of the iris. The afflux of blood is sometimes so energetic that little sanguineous extravasations are formed at the level of the iris, and the blood sometimes accumulates even in the anterior chamber. Now, it is indisputable that such an intense hyperæmia exercises a favorable influence on the production of the aqueous humor, which would serve not only to increase the intra-ocular pressure, but also as an absolutely antiseptic liquid for bathing the anterior chamber by its passage through the wound into the conjunctival sac. I can add that since we have begun to operate upon eyes previously atropinized (two years and a half), it more rarely happens that we observe any considerable diminution of the intra-ocular tension characterized by wrinkling of the cornea.

Thus, the danger in extraction of cataract is due in part to the physical phenomena taking place in the eye

* *Annales d'Oculistique*, t. cx. p. 81.

after their operation, and in part to the condition of the conjunctival sac, which cannot be sufficiently sterilized with the antiseptics which we have at our command. The generally admitted opinion that the lachrymal canals are, in certain cases, the immediate source of the eye infection seems absolutely erroneous. Every time that we have a retraction of the lachrymal canal and an interference with the lachrymal circulation as a result of this affection, the number of parasites inhabiting the conjunctiva in its normal condition ought to be necessarily increased, and it is to this circumstance alone that the unfortunate results of the operation are due. The contents of the lachrymal sac are absolutely indifferent to the eye, for the simple reason that they never penetrate into the conjunctival sac except in case of congenital or acquired anatomical changes. If this were possible—if there existed a current of liquid, were it but very feeble, directed from the lachrymal sac toward the conjunctiva—we would have, after almost every extraction of cataract, a purulent inflammation of the iris or the choroid, even in case of the complete integrity of the lachrymal canals. This current, in a sense inverse, never exists. The air found in the nasal fossæ, sometimes under considerable pressure, does not escape by these canals, for the very good reason that it is impossible, since it has to do with a liquid substance.*

Contrary to what is advocated by certain oculists, I believe that it is absolutely useless, nay, even dangerous, to obliterate in one way or another the lumen of the lachrymal canals; for, owing to the complete interception of the communication with the nasal fossæ, we favor the retention of tears in the conjunctival sac. It is much more

* I have known only a single case where the air contained in the nasal fossæ passed into the conjunctival sac. That was in a young man who presented himself at the hospital complaining of "whistling through the eyes." When I expressed doubts as to the reality of this fact the patient blew through the nares, and we heard a sound resembling a whistle; emanating, evidently, from the orifices of the lachrymal canals. A transparent liquid escaped with the air, in the form of a transparent jet. I am unable to state the least anomaly in the conformation of the lachrymal sac or the lachrymal canals.

reasonable to remove the obstacle, to re-establish the circulation of the tears in cases where it is believed that there is any anomaly whatever of the lachrymal area, and to hinder in this way the development of parasites at the level of the conjunctiva.

With the purpose of proving the danger menacing the operated eye, arising from the lachrymal areas, certain oculists have called attention to the examples of acute dacryocystitis, developed beneath the dressings, in cases where there previously existed pathological changes, insignificant and often easily overlooked. This latent affection of the lachrymal sac determining the panophthalmia would, according to these oculists, undergo an exacerbation only after the dressing, and to avoid this complication, certain operators apply the dressing to the eye upon which they are to operate for some days previous to the operation; since if, after the removal of the dressing, there is no sign of inflammation of the sac, they can proceed to the operation for cataract with perfect security. I doubt, meanwhile, if the temporary dressing would be able to bring to light the latent affection of the lachrymal sac. Besides the operation for cataract, the oculist performs a number of other operations, after which the eye ought to remain dressed for some time; moreover, in many ocular affections a dressing is indispensable, and many patients have their eyes bandaged for whole weeks; nevertheless, in all these cases we have never encountered an unexpected inflammation of the lachrymal sac. But we have had occasion to observe this disagreeable complication, accompanied by grave inflammatory symptoms of the iris, on two or three occasions after the operation for cataract.

Taken altogether, the minute examination of all these circumstances accompanying the simultaneous manifestation of these symptoms leads us necessarily to this conclusion, that suppurative inflammation of the lachrymal sac does not precede panophthalmia, but on the contrary develops after it. In support of this point of view, let me report a case observed very carefully at the hospital:

The patient with a soft cataract of the left eye suffered from lachrymation of the same side, thus giving evidence of a slight inflammation of the lachrymal sac. This inflammation showed itself in a mucous secretion, appearing in the orifices of the canal upon slight pressure in the region of the lachrymal sac. With the object in view of completely curing the disease of the sac before operation we treated the patient for almost two months, and when we could easily introduce the largest Bowman's sound into the naso-lachrymal canal, when all secretion of the sac had disappeared, we applied a compressive dressing (renewed every other day for eight days) to show the possibility of a new exacerbation. In spite of this long trial no sign of inflammation of the sac was noted. There remained only a slight lachrymation, due solely to the diminished elasticity of the walls of the lachrymal sac; this latter trouble is often observed in conditions following chronic inflammation of the sac. We proceeded then to the operation, hoping with good reason for a complete success. The next day the patient complained of pain, the dressing was removed, and what our astonishment to find a blenorrhagia of the sac and a suppurative iritis which soon turned into a panophthalmia.

Are we in this case authorized to seek the source of infection of the globe in the lachrymal sac? Evidently not. On the contrary, everything seems to prove that the inflammation of the sac was secondary and due to the suppurative iritis. Moreover, the explanation of this fact is not difficult. Every time that we have had occasion, as in the above-mentioned case, to restrain the flow of tears, resulting in retraction of the naso-lachrymal canal or in loss of the elasticity of the sac, the danger menacing the operated eye was increased; yet this danger is not due directly to the slight alterations in the lachrymal areas, but in the defective hygienic conditions found in the conjunctiva; the parasites being arrested there and developing with facility. If, for the reasons we have shown, the liquid of the lachrymal sac penetrates into the interior of the operated eye, the parasites that it carries into the anterior chamber find, in the aqueous humor and the débris of the cataract, an excellent culture medium, in which they

develop with extreme rapidity and take on a malignant character; passing to the conjunctiva through the well-opened wound usually found in these conditions, the micro-organisms penetrate into the lachrymal sac when they easily give rise to a purulent inflammation. It goes without saying that the stagnation of the tears in the sac is here an indispensable condition.

Moreover, every acute or chronic conjunctivitis may contribute to the production of a blennorrhœa of the lachrymal sac in event of the occlusion of the naso-lachrymal canal; such observations are not rare, especially in newborn infants, in whom this affection is often congenital.

Most oculists consider the vitreous body as a *locus minoris resistentiæ*, opposed to the inflammatory process; the prolapse of the vitreous body at the time of operation, and especially its lodgment in the incision, would favor the appearance of a panophthalmia. This opinion, which is not founded upon the actual facts, appears to me erroneous. In many instances I have had occasion to observe patients, in whom the vitreous body appeared as a hernia through the incisions, lasting for days or even weeks without causing any complications whatever.

We have followed, for several months, a patient whose history is particularly instructive.

This history is as follows:

An individual of seventy years; absolute glaucoma of the left eye; beginning cataract in the right eye; preparatory iridectomy in the hope of preventing the progress of the glaucoma to the right side, followed by swelling of the cataract and the extraction of this cataract after some months. At the time of the operation, after the extraction of the crystalline, the vitreous body appeared in the incision and formed a hernia in the form of a transparent tumor occupying the full extent of the wound. This condition persisted for more than ten days, and we resolved to remove the tumor for fear of a possible infection. The operation was again complicated by the issuance of the vitreous body; we at once applied a dressing which was not removed for four days. The appearance of the eye was not changed. The

vitreous body still remained caught in the widely gaping incision. Not wishing to expose the eye to disagreeable complications by a new operation, we preferred to preserve an expectant attitude. After about five days we noticed that the tumor began to be encircled at its base with a membrane seeming to form a continuation of the ocular conjunctiva. This pellicle extended more and more over the surface of the tumor, approaching the apex by degrees. In about two months the encircled portion of the vitreous body was completely enveloped by a capsule which united immediately, macroscopically at least, with the conjunctiva.

Although a conjunctivitis due to prolonged dressing developed in our patient, although the vitreous body was exposed to infection for a number of weeks, not the least sign of inflammation of the eye could be detected. This would have been impossible if the vitreous body had offered a soil favorable to the development of parasites.

Thus, basing our opinion upon this case, as well as many others in which we have a condition of prolapse of the vitreous body and its entanglement in the incision, we are authorized in attributing to it a considerable resistance to inflammatory processes rather than a particular tendency to infection.

II.

Concerning the value of the previous use of atropine in the operation for cataract.

In my article "Operation for Cataract upon the Atropinized eye," which appeared in the *Annales d'Oculistique* (*loc. cit.*), I have held that the previous energetic use of atropine exerts a very favorable influence upon the result of the operation. I may have advanced this opinion too hastily, having only applied it in seven cases that I operated; if I am ardent in the matter, it is because the post-operative progress in the cases in question was exceptionally satisfactory and unexpected. The number of patients operated according to this method in our service amounting to 170, I believe that I am authorized to advance conclusions well founded and positive, and am permitted to return to this

interesting question which has been treated in literature but rarely, and in a superficial manner.

All oculists seem to be in accord concerning the necessity of employing atropine in the majority of cases during the post-operative period. The symptoms of irritation due frequently to operative traumatism on the one hand, and the fear of iritis with posterior synechia on the other, indicate the application of atropine in almost every case of extraction of cataract. However, the instillation of atropine into the eye operated upon is often very inconvenient. In the first place, in private practice the physician has not always at his command a well-sterilized solution of this drug, and he sometimes abstains from the use of atropine, in conditions when it is clearly indicated, only for fear of introducing into the operated eye some infectious agent. Another inconvenience in the post-operative use of atropine lies in the necessity of often renewing the dressings, which is disagreeable for the surgeon and dangerous for the patient. The opening of the anterior chamber may sometimes take place at the moment when the dressing is removed, especially in sensitive patients closing the lids with all their power when the atropine is instilled. Finally these marked synechiæ, not succumbing to an energetic use of atropine, have already appeared on the day following the operation. This is why in cases of cataract not having arrived at maturity, when there may be considerable accumulation of residue in the pupil, it may be completely occluded.

The previous instillation of the eye destined to be operated permits not only the avoidance of the inconveniences that we have mentioned, but offers still other extremely important advantages, favoring the execution of the operation and, what is still more important, the final results obtained.

It is important to call attention to the diagnostic value of atropine. There is no doubt that all oculists well versed in ophthalmology are able to make a good diagnosis without the dilatation of the pupil. However, the examination will be easier and more sure if the pupil be dilated *to the*

maximum. Let us recall here that the exact recognition of the characteristics of a cataract is extremely important, for they indicate the operative method to choose, the extent of the incision to be made, and sometimes lead the surgeon to take particular precautions when they are needed—for example, in the cataract of Morgagni. Moreover, the dilatation of the pupil considerably facilitates the use of certain instruments, and this constitutes the second no less important advantage of the previous use of atropine. This advantage is especially evident in dissection of the sac of the cataract by means of the cystotome and in the use of the forceps cystotome. The introduction of the forceps in cases where the pupil is contracted, especially when iridectomy has not been practiced, is sometimes very difficult and even dangerous, for there is a risk of seizing the pupillary border as well. It is true that after the escape of the aqueous humor the pupil contracts slightly, but it nevertheless remains very much larger than in cases when atropine has not been applied; the maximum contraction taking place only after the removal of the crystalline lens. Nevertheless, the most important merit of operating upon an eye with the pupil dilated to the maximum lies in opposing, to a considerable extent, the formation of *solid* adhesions between the iris and the débris of the cataract and in contributing very remarkably to the reabsorption of the latter. In examining the post-operative condition of our patients after we had instilled atropine for several days preceding the operation for cataract, we have noticed a number of times that the pupil, contracted immediately after the operation, dilated slowly from the day following the operation to reach its maximum dimensions in about four days. That is to say that the contraction of the sphincter of the iris due to rapid lowering of the intra-ocular tension, and consequently to the sudden afflux of blood and of lymph into the vessels of the iris, only annulled for a time the action of the atropine. This observation authorizes us, then, to conclude that atropine exercises its action in the operated eye for a sufficiently long time, and that, consequently, the

frequent dressings of the eye are all unnecessary. We now look at the eye, operated upon only at the end of four days except in the rare cases where the patient suffers from restlessness. We are then much more fortunate from this point of view than those of our colleagues who are often obliged to return to their patients, the evening of the operation, to renew the dressings and avoid disagreeable complications by the instillation of atropine. This instillation of atropine, although quickly done, has not only the inconvenience of discomposing the patient several hours after the operation; it certainly renders less important service than the pre-operative use of atropine.

Besides these advantages, the energetic use of atropine preceding the operation incontestably exercises a calming influence over the inflammatory phenomena which, though rare, are nevertheless inevitable in a certain small number of cases. I would say that they are even prevented, at times.● It is certain at least that, at present, irritation of the eye after the removal of the first dressing is much more rarely observed, expressed by a considerable episcleral hyperæmia, the immediate result perhaps of operative traumatism. At the time of changing the first dressing it is not rare to note the absence of all signs of irritation and also of the residue of the cataract; the pupil is dilated, round, central; so astonishing are these conditions that the surgeon believes for a moment that he is examining the eye not operated upon.

It is also on account of the previous use of atropine that the eye preserves its elasticity during the operation for cataract without iridectomy. I have already noted this fact, and now the results of my two and a half years' experience only go to confirm it. In the total number of 170 operations we have had 7 prolapses of the iris; that is, four per cent. The difference between this proportion and that which we had before the application of atropine (fifteen per cent.) being very great, we cannot attribute it to chance, and we ascribe it boldly to the good offices of the atropine. While, in my first communication upon the operation

for cataract without iridectomy upon the atropinized eye, I analyzed the causes of prolapse of the iris, I was of the opinion the principal if not the only cause of this complication is due primarily not to any external conditions, but to the iris itself ; its elasticity and contractility being more or less marked. My later observations go not only to support this view, but permit me also to point out precisely the causes of prolapse, which I locate in the sphincter of the iris. We have often seen after an operation that the iris had lost its tone ; the least movement of the patient made it escape from the wound the same as when slight pressure is exerted upon the cornea. It is evident that after inappreciable macroscopic anatomical changes or some lesion at the time of operation, the contracting mechanism, the sphincter of the iris, has lost its contractility up to a certain point. This is particularly evident in wounds of the iris. The structure of this muscle is so delicate that it is sufficient to graze it slightly with the knife to see produced at the periphery of the pupil, or even from simple contact, a notch due undoubtedly to the contraction of the muscular fibers of the sphincter of the iris located at this point. It is probable that the wound of the muscular fibers of the sphincter, with consecutive partial diminution of its contractility, is produced, occasionally, when the hard and voluminous core of the cataract escapes by gliding through the pupil. There are two succinct observations confirming the point of view just expressed : in the first case, a small band is cut in the thickness of the iris beside its pupillary border, of which the length corresponded to the extent of the sclero-corneal incision, and was one millimeter broader ; when the first dressing was removed, there appeared a prolapse of the iris occupying the whole incision.

In the second case, where there was a partial prolapse of the iris, in the internal angle of the incisions, the sphincter was wounded with the cystotome at the time of the operation, at a point corresponding to the prolapse ; there resulted immediately a notch in the pupil. It seems to me that these cases indicate clearly enough a relation of cause

and effect between the wound of the sphincter and the prolapse of the iris. Hence, with the view of avoiding this complication, it is of importance to guard against the least lesion of the sphincter at the time of the operation; it is necessary, moreover, to seek to repair its physiological function. Now, in one sense as in the other, atropine renders us remarkable service. On the one hand, the dilatation of the pupil facilitates considerably the passage of the cataract through the pupil, which evidently diminishes the chances of wounding the sphincter at the time of operation; on the other hand, the instantaneous filling of the vessels of the iris, following the rapid lowering of the intra-ocular tension, produces after the extraction of the cataract an energetic contraction of the sphincter, which leads sometimes to a very strong contraction of the pupil. It is then to the properties of the atropine alone that we must attribute the small proportion of prolapses of the iris occurring in our patients after the application of this method. It is important to note that we have not chosen particular cases for operation without iridectomy, as was done by other oculists.

We have abstained from iridectomy even when it was necessary to extract with a curette a deviated cataract, or to break a hardened capsule. We have operated almost all our cases, in the first hundred especially, without iridectomy, after we had proved the value of atropine as a prophylactic means against prolapse of the iris. It is certain that the proportion of prolapses would be reduced considerably if we followed the principles of Landolt and De Wecker: *for a simple cataract, a simple extraction* (Landolt, *L'opération de la cataracte de nos jours*; *Archives d'Ophthalmologie*, 1892, p. 430).

Having given the very important advantages accruing from the previous use of atropine, we are authorized in proposing the following conclusion: *All operations for cataract, whatever the method chosen by the surgeon, ought to be performed with the eye under atropine.*

THE TREATMENT OF HETEROPHORIA.

BY HAYES C. FRENCH, M. D., SAN FRANCISCO.

HAVING determined beyond question, after thorough and repeated tests, extending over long periods of time if necessary, that the heterophoria is absolute and permanent and not dependent upon merely transitory causes; having exhausted all other resources, a careful tenotomy should be performed. My method of operation is practically that of Stevens, though I should not agree with that distinguished author in always pushing the operation to the extent of causing immediate orthophoria. Sometimes a very slight operation, that has not at the time changed the heterophoria, as measured by prisms, more perhaps than one degree out of four, will yet relieve the sense of nervous strain, establish proximate co-ordination, and the subsequent employment of prism practice restore perfect function. Many careful and successful operators are employing advancement of the weaker muscle instead of weakening the stronger; it remains to be seen whether this practice is as successful as in strabismus, or whether it is superior to Stevens' method of carefully executed "graded tenotomies." The writer has seen the most gratifying results in the training of defective muscles by means of prisms conjoined with galvanism, especially in cases of constantly changing degrees of exophoria; while little benefit as a rule has followed the most persistent employment of these measures, either in esophoria or hyperphoria.

If these agencies do not within a reasonable time, say two to four months, result in decided improvement, we have

seldom found any substantial relief short of operative measures. There are undoubtedly instances in which heterophoria is of a transitory and spasmodic character, and in these cases, especially when the result of muscular asthenopia, caused by sudden and severe strain, a mydriatic will be found of great service both in the diagnosis and subsequent treatment. The practice of using weak prisms with their bases toward the weakened muscles, as a stimulus, has not in our experience, with few exceptions, sustained the claims of its advocates; and in many instances the method has been demonstrably a failure, throughout the treatment. We have been cautious almost to timidity in these operations on the muscles of the eye, and would expect greater danger of overcorrection in exophoria or hyperphoria. In our practice we have seldom prescribed prisms of more than one-half degree for each eye, and such prisms, if advantageous, are frequently only a temporary necessity. If a higher degree than this is called for we have usually found the remedy, and only remedy, in tenotomy.

Some writers have claimed that tenotomies and advancements are more effective in cases of myopia and myopic astigmatism than in those of hyperopia; while in my practice the use of prisms has been more efficacious in myopic than in hyperopic cases, because the former are more often associated with exophoria and the latter with esophoria; but the rule as to the effect of tenotomies has seemed to be just the opposite. Overwork is a frequent cause of exophoria, and a large percentage of these cases will recover from perfect rest alone. Hence operative measures should not be resorted to till all other resources have failed.

REPORT OF A CASE OF ACUTE UVULITIS.

BY HAL FOSTER, A. B., M. D., KANSAS CITY, MO.

ON May 3, 1897, M. A., a farmer from Atchison County, Kan., presented himself at St. Margaret's Hospital. My attention was called to him by the house physician. He was unable to speak, being badly scared. He was fifty-four years old and a hard-working farmer. His health had always been good, he had seven children. Several days prior to coming to the hospital he took a severe cold, for which he drank some very hot coffee. He noticed at the time that his throat was paining him. Several hours after the pain grew much more severe in the region of the palate. Early the next morning a physician prescribed a gargle, which failed to afford relief. The pain grew rapidly worse and the voice was lost; this of course frightened him badly. He immediately came to the hospital.

On examination I found the uvula to be enormously swollen, elongated, causing a constant cough; there was some suffocation, as the tonsils and arches were concealed by the greatly distended uvula. He was still unable to speak, the aphonia was hysterical. There was a slight pain which extended to right jaw. The patient was very much excited; the day before his lawyer had made his will for him, and he was now convinced that death was near. After I had examined him very carefully, he was informed that he was in no immediate danger of dying; that a slight operation would cure him. This statement helped him greatly. A twenty per cent. solution of eucaine was applied directly to the inflamed organ.

After waiting fifteen or twenty minutes in order that the eucaine might have ample time to act, a small portion of the organ was removed by the galvano-cautery snare. There was no pain and only a few drops of blood lost during the operation.

The aphonia soon left, and he was able to talk as well as usual. The cold was undoubtedly the cause of the trouble in this case. Great care was exercised not to remove too much, as there is always considerable shrinkage in these operations, even after a small portion has been removed.

This patient was under my care for ten days, after which time he left the hospital entirely well. In doing a uvulotomy I always use the cautery snare. By doing so there is no pain, and as a rule no hemorrhage follows it. It is well to use a soothing gargle or spray. The local use of ice rapidly removes all inflammation. In this case the trouble with the uvula had so badly frightened, and made such a profound impression on the mind of the patient, that a complete aphonia had resulted.

In even a trivial operation like uvulotomy, the operator should use great care, causing no pain or hemorrhage.

A REVIEW OF THE TREATMENT OF NASAL HEMORRHAGE.

BY C. E. TEETS, M. D., NEW YORK.

IN selecting this title, it was not for the purpose of advocating any new or original treatment for epistaxis, but to present to your attention a subject which I know you are all familiar with and which should bring out a liberal discussion.

In looking over my journals in the past, I have read with considerable interest the different suggestions in case of rebellious nasal hemorrhage, some of which I made a note of. These I will review, together with some practical methods for controlling epistaxis which I have found of special value, especially after operations. In this review I shall not pass by, without making mention of, the home treatment which the family so often resorts to, such as a brass key down the back or a piece of brown paper under the lip. In many cases these simple means arrested the hemorrhage and were the only treatment used.

Another method, if persistently tried, will in many cases arrest the bleeding—that is, grasping the nose with the finger and thumb, so as to completely prevent any air passing through the cavity in the act of breathing. Or we may give relief by the local application of lemon juice, applied in the following manner: First, the nasal passages are cleared of all blood clots, and then an injection of the fresh juice is made with a glass syringe into the nostril from which the blood is escaping, with the result of immediately arresting the hemorrhage. Or we may introduce into the

nostril, to a considerable distance upward, a piece of fine sponge cut to the size and shape necessary to enable it to enter without difficulty, previously soaked in lemon juice or vinegar and water. The patient is to be kept lying on the face for a length of time, with the sponge in place. This is the procedure employed by Dr. Siredey for controlling epistaxis in typhoid-fever patients.

Jonathan Hutchinson advocates a method of treatment for arresting nasal hemorrhage which he avers has never failed of success in his hands, and he claims to have had many very rebellious cases. It consists in plunging the patient's feet and hands into water as hot as can be borne. A very good method, and one advocated by Dr. A. A. Philip, is to take a thin piece of oiled silk, push it well back to the posterior nares by means of a smooth stick, and pack the center with small pledgets of cotton.

I have used many times with excellent results a five per cent. solution of antipyrine in sterilized water in the form of a spray, or applied by saturating strips of lintine with the solution. But Dr. Roswell Park relates in the *Medical News* his discovery of a new styptic, consisting of a combination of antipyrine and tannic acid in solution. From this combination is precipitated an intensely agglutinative and cohesive substance, which he claims offers the most ideal styptic for certain purposes ever dreamed of. This combination is an alcoholic solution of tannin with antipyrine in powder. There is formed at once a gummy mass, at first flocculent, which quickly coheres; the result being a combination the stickiness and adhesiveness of which surpass any other styptic known. They may be united in almost any proportion with the formation of the gummy mass. There is but one difficulty, that it is so remarkably cohesive that, when the time comes for detachment or separation of the tampon, it is difficult to remove it. It may even be necessary to wait for sufficient time for the formation of granulations and separation by natural processes.

This is a styptic I can recommend and one worth remem-

bering, as it is much cleaner than the Monsel's Solution so often used to control nasal hemorrhage.

A very novel method which was advocated by Professor Hodgen of St. Louis twenty years ago, called by him Dr. McDowell's method, has been fully described by Dr. H. D. Wood. It is to introduce into the nasal cavity a condom and fill it with air or water. Dr. Wood describes the method he has practiced, as follows: Cut off two or three inches of the open end of the condom, as may be thought necessary, and introduce with a No. 5 or 6 soft rubber catheter, leaving the bag to project almost half an inch beyond the end of the catheter, as it will shorten when distended. Hold the cut end of the bag evenly around the catheter and take a few turns with a sewing thread, and tie securely to prevent from leaking, but not so tight as to obstruct the lumen of the catheter.

Now dip this simple instrument a few times in clean water to which a few drops of carbolic acid have been added; hold the bag between the thumb and finger of one hand, and twist the catheter with the other until it is brought in contact with the end of the bag.

While holding the instrument in this way, ask your patient to forcibly blow the nose so as to free it of all blood clots. Now introduce the instrument into the bleeding nostril until it lies just within the cavity. Then give the catheter a turn in the opposite direction and fill it with air or water and plug the end so the rubber bag will remain distended. The catheter can then be fastened to the head with a bandage, or a cord may be tied tightly around it near the nose and cut off.

In making this apparatus two condoms might be used, slipping one bag into another, so as to prevent, after operations, sharp spiculæ of bone from cutting through and spoiling the bag.

Dr. Wood considers this the simplest and safest as well as the cleanest method that he has seen described. It is very easy to remove; all you have to do is to let the air or water out, twist slightly, and withdraw the bag. Cooper

Rose has designed an instrument for plugging the nasal cavities on the principle described by Dr. Wood. It consists of an india-rubber bag connected with a tube, which is provided with a stop-cock. The bag is introduced into the nostril in a flaccid state and then distended by blowing it up through the tube. Other methods of anterior plugging have been described, and various astringents have been recommended, for the purpose of saturating the plugs, *e. g.*, turpentine, tincture of hamamelis, trillium, perchloride of iron, or a solution of tannic or gallic acid.

In a case of epistaxis, the first thing to do is to make a rhinoscopic examination, and, if possible, find the source of the hemorrhage. If, as is usually the case, the bleeding is seen to come from a point on the anterior part of the septum, the flow may be arrested by a pledget of iodoform gauze, or by applying to the bleeding point chromic or trichloroacetic acid, or the nitrate of silver if ulceration is discovered. The most certain plan of effecting a radical cure is by the use of the galvano-cautery. First, a ten or twenty per cent. solution of cocaine is applied to the affected part by means of a strip of lintine, and allowed to remain for a few minutes so as to render the mucous membrane anæsthetic. Then a flat platinum electrode should be heated to a dull red heat, and applied carefully to the seat of the hemorrhage; the outer wall of the nose being protected by a suitable speculum. After cauterization the cavity should be sprayed with glymol and eucalyptol.

Supposing, however, that a careful rhinoscopic examination fail to reveal the immediate source of the hemorrhage, or that the loss of blood is so excessive as to prevent us making a satisfactory examination, then recourse must be had to plugging.

In addition to the methods I have already described I wish to suggest two others, which I have used with the most satisfactory results.

The first is, to take a strip of plain gauze about three-fourths of an inch wide and, after saturating it with hamamelis or fluid extract of *geranium maculatum*, pass it

up the nostril through a speculum, and carefully plug every part of the nasal chambers.

The second method is to take a cork and shape it so as to conform to the nasal passage to be treated. This is then dipped into iodoform and collodion and when dry introduced into the nasal cavity, with the result of immediate cessation of the hemorrhage. This undoubtedly is the most cleanly and least objectionable of any method I have seen described; furthermore, it can be removed with the least difficulty. In some cases, after the most careful plugging the hemorrhage continues, and then recourse must be had to the method of posterior plugging.

This may be accomplished with Bellocq's canula or with a soft rubber catheter. In the absence of either a strong piece of twine which has previously been dipped in collodion, or a piece of silver wire, doubled so as to form a loop, may be used. One of these is passed into the nostril and carried into the pharynx and brought out through the mouth. The next step is to take a string, attach to it a pledget of cotton or gauze of sufficient size to occlude the posterior nares. The one end of the string is tied to the extremity of the instrument and the plug drawn up close to the posterior opening, its adjustment being assisted by means of a finger in the naso-pharynx. The medicinal treatment should not be forgotten. The remedies that have been especially useful in epistaxis are as follows: Aconite, belladonna, china, cinnamomum, hamamelis, ipecacuanha, millefolium, trillium, and geranium maculatum.

PREVENTION OF OTITIS MEDIA CATARRHALIS CHRONICA.

BY E. H. BALDWIN, M. D., NEWARK, N. J.

PREVENTION of chronic catarrh of the eustachian tube and middle ear lies in the domain of the general practitioner rather than in that of the specialist, because the great majority of "earaches" are treated by the former, and acute otitis media is the most frequent cause of the chronic variety. Other causes—pregnancy, syphilis, scrofula, or other cachexia—must be recognized; but prominent above them all, because so much more frequent, stands repeated attacks of acute catarrh, the common earache. There is possibility for harm in every one—strong probability for permanent injury when the attacks are repeated. Let me quickly review the process in the eustachian tube and middle ear during one of these acute catarrhs. It is not necessary, because not practical, to draw fine clinical distinctions between the "tubal catarrhs," affecting only the eustachian tube, and the more general variety, which passes on to the middle ear. They are practically one, so far as this paper is concerned. First, the pharyngeal mouth of the eustachian tube becomes closed, and immediately its very important functions of ventilation and drainage of the middle ear are suspended. The air left in the tube and middle ear is soon absorbed by the surrounding tissues, causing a vacuum and attracting a rush of blood from all directions. Thus congestion is established, and the more tightly the eustachian tube be closed the more intense is the congestion. The next step

is a profuse sero-mucous hypersecretion, which, by the admixture of detached epithelial cells undergoing fatty degeneration, becomes thick, viscid, and tenacious. The great pressure inside the sensitive middle ear causes intense pain, and the "earache" is now making it interesting to the patient and the rest of the household.

Examination *per speculum* would show the tympanic membrane of a pinkish, or even coppery-red color, and bulging outward from the contained secretion. Should the inflammation be sufficiently intense, the catarrh will pass over into the purulent form, and only subside after perforation of the membrana tympani; but this condition is not within the limits of this paper.

Now, there are three other possible terminations of the acute catarrh—complete resolution, partial resolution, and, finally, the establishment of chronic catarrh of the middle ear. In any case the active process subsides, the pain ceases, and the desired relief is found. I say "relief" advisedly, because, when the pain ceases, the "earache" is almost universally looked upon as having come to its natural end, everybody is happy, and the household returns to its natural quiet. Not one person in a thousand seems even to imagine that further treatment of any kind is needed. The laity almost invariably neglect these cases, and even physicians let the patient pass out of their observation, with simply a warning to avoid catching cold or getting the feet wet. To be sure, the patient is somewhat deaf, and his head feels full, but this is expected to "come around all right" in a few days. What of the eustachian tube with its walls pasted together—filled with sticky mucus—even pus, perhaps—and the delicate middle ear, with ossicles buried in the same tenacious mucus, and walls denuded of epithelium? What is to become of this secretion, and what is to prevent its organization into tough bands, binding down the ossicles and membrana tympani, and causing permanent loss of hearing? And yet this is the state of affairs, so often left alone to "clear up by itself—to come around all right." Such neglect by a physician is almost

malpractice. Perfect resolution does occur in those so fortunate as to possess a vigorous and otherwise healthy mucous membrane; but is this happy termination to be expected in the average catarrhal subject, in this climate? Would you want to take the chances in a personal test?

Partial resolution is the most common result, attended by slight loss of hearing—not noticeable, perhaps, but only awaiting another attack to develop its latent power for permanent injury. But when the tendency is toward the chronic condition, the process will certainly produce deafness, unless vigorous and persistent treatment prevents. The danger most to be dreaded is the formation of interossicular adhesions, and retraction of the membrana tympani, caused by formation and subsequent contraction of mucous bands. The ossicles are thus bound down and cannot move, while the membrana tympani are dragged upon until, with mobility lost, the function of transmitting sound-waves is practically ruined.

Adhesions also occur with but little secretion; the ossicles, especially the stapes, becoming fixed from shrinking and induration of the mucous membrane and ligaments. This constitutes true sclerosis.

Thus we find, among the results of acute catarrhs, stricture or even occlusion of the eustachian tube; great rigidity of the ossicles and membrana tympani; mastoid cells reduced in size, and even obliteration of the middle-ear cavity; while in those of gouty or rheumatic diathesis, limy deposits may occur.

In the face of these facts and possibilities, is the after-treatment of common earache something to be neglected? We must prevent the formation of the mucous bands, and their retraction of the tympanic membrane, by using the Politzer air bag and pneumatic speculum, three or four times a week at first, and once or twice later. The former opens the eustachian tube, and gives the middle ear a chance to get rid of the secretions, while the latter prevents stiffness and ankylosis of the tympanic membrane and ossicles. This mechanical treatment is too important to be

neglected. Finally, study the case *thoroughly*, and give the remedy *most truly homeopathic* to the conditions. Here is where we can far excel the old-school physician, in bringing the tissues back to their natural condition. The remedies of greatest value are those that restore circulation to mucous membranes—the kalis (especially the muriate), mercuries, lime salts and their combinations, with iodine. Give the remedy persistently for two weeks at least, while using the Politzer bag and pneumatic speculum, as described, and you will have the satisfaction and pleasure of a patient saved from almost incurable deafness. The writer has had under his care a number of cases of chronic aural catarrh resulting from neglect in the treatment of the acute variety. These cases have prompted the writing of this paper, and if one practical suggestion has been given and received, it has not been written in vain.

REPEATED ATTACKS OF ORBITO-PALPEBRAL HEMATOMA IN A CASE OF HEMOPHILIA.*

BY E. VALUDE.

SPONTANEOUS hematoma of the lids is very rare and in adults has been observed only in sclerosis of the arteries, and that very exceptionally.

Spontaneous hematoma of the orbit, perhaps less exceptionally, is never the less a pathological rarity. M. Panas, in his recent treatise on ophthalmology, has taken the pains to look up and relate all the known cases. They are seven in number, including one personal observation. In adults somewhat advanced in age, the origin of the spontaneous hematoma should be sought in arterio-sclerosis. Such seems, at least, to have been the cause in a case of De Wecker's, a man aged sixty. If it occurred in a middle-aged woman, it might be referred to menstrual troubles and compensatory hemorrhage.

In children hemophilia may be the cause, as in Zehender's case; or a defective state of the digestive tract, as in the young subject whose history is reported by M. Panas, who had a dilatation of the stomach and suffered from vomiting due to a pronounced condition of dyspepsia.

Finally, the pathogenesis of spontaneous hematoma of the orbit or of the lid is most obscure, for in every known case a different cause has been found. In order to solve the problem it is therefore necessary to register the following case, in which the phenomena of hematoma appeared at the same time in the orbit and in the lid, and must manifestly be referred to hemophilia.

* *Annales d'Oculistique*, March, 1897.

Mrs. C., thirty-four years of age, is a woman presenting a bad aspect, thin, of moderate health, but without characteristic organic affection. She has frequent headaches, habitual flatulent dyspepsia with obstinate constipation, and a marked nervous state but not exaggerated.

Objective examination of the respiratory and vascular organs reveals nothing abnormal. She suffers often from shortness of breath and presents at times œdema of the limbs, but on auscultation no characteristic cardiac murmur is found.

The urine is normal.

Very clearly defined symptoms permit us to class this patient among the hemophilia; still this designation does not bear a very precise nosological significance. It is impossible, however, to class it otherwise, for the patient reports that she has always had a very great tendency to hemorrhages. The slightest wounds heal with difficulty, and a pimple on the face, when scratched, bleeds freely and for a long time. A still more typical condition is related by the patient. All that is necessary to make the blood flow is to rub the face rather hard with a towel that is a little rough. During the past five or six years it has twice happened that after friction of this kind on the face and neck the blood has flowed in such abundance that it has been necessary, in order to arrest the hemorrhage, to tampon with amadou and to use perchloride of iron.

At another time the patient complained of some trouble in the mouth. She went to a physician, who discovered a submucous sanguineous pocket in the region of the root of the palate; which emptied itself, leaving no trace.

These unusual accidents leave no room for doubt that there is an exceptional temperament or that it is hemophilia. The examination of the blood made by Dr. Chauffard shows among other things a certain delay in the coagulation, which does not commence for about fifteen minutes. There is nothing abnormal so far as the elements of the blood are concerned; the red and white corpuscles being found in quantities relatively and absolutely physiological. The delayed coagulation is, however, characteristic.

Finally, then, the patient is a victim of hemophilia, slightly neurotic (she has uterine troubles at times), and at present suffering from a slight dilatation of the stomach and a little enteroptosis.

Under these circumstances the following symptoms appeared in the patient :

On the 30th of last September there was seen a swelling on the right side of the face which extended to the cheek, the lips, and slightly on the forehead. At the same time the patient experienced a very sharp localized pain at the upper and inner portion of the right orbital opening.

Two days afterward there appeared an ecchymosis at the point, which had been the seat of the pain. This sanguineous extravasation disappeared and descended toward the lower lid, when it spread out and to a certain extent became scattered.

The symptoms seemed to improve after a few days ; the swelling subsided little by little and the palpebral ecchymosis disappeared, when on the 9th of October, ten days after the occurrence of the primary symptoms, the patient suddenly experienced a sharp pain at the point already mentioned, the upper and inner portion of the orbit. At the same time a bunch showed itself at this point above the globe of the eye, raising the upper lid.

Simultaneously there appeared a little swelling of the whole region ; an ecchymosis occupying the upper lid, the inferior palpebral groove, extending as far as the cheek. The patient was taken with fever and vomiting. In about two days there was considerable prostration. It is to be noted that neither the first attack nor the second was found to coincide with the rules. These were exceeded in their normal course and intensity. Otherwise the patient is actually in good health.

On the 12th of October I was called to examine this patient. I found the following condition: The right side of the face was a little swollen (the swelling having diminished during the past two days); both lids were marbled with extensive ecchymosis of extravasated blood; above and on the inner side of the globe of the eye there was seen to project beneath the lid a sharp bunch, very sensitive, which extends backward into the orbit in the form of a fluctuating tumor, which could be pushed back a little into the orbital cavity. This pouch of liquid did not show any pulsation, presented no souffle, and was not reducible by pressure. It is easy to mark it out from the neighboring tissues and, on account of the very marked fluctuation, it gives the impression of a cyst which is superficial at one point and has a deep prolonga-

tion. The patient suffered from sharp, lancinating pains in the region described.

On October 12 I punctured the tumor with a hypodermic needle and withdrew about two grams of blood, slightly dark in color, but not completely altered. I applied afterward a thick pad with pressure.

On October 16, as the cyst seemed to have refilled somewhat and as fluctuation was still perceptible, I punctured it again and removed one gram of the same sanguineous liquid. The cystic cavity was then completely emptied. Dressed with a pressure pad.

After this second puncture the ecchymosis and swelling subsided regularly and rapidly. The sharp pains entirely disappeared after the first puncture.

On the 23d of October there remained in the place occupied by the cyst a slightly doughy nodosity, very sensitive, and prolonged in the form of a thickened fibrous cord deep into the orbit along the superior internal angle of this cavity.

The deep portion of the orbit did not give, by digital exploration, any sensation of a tumor or even of thickening.

On the 28th of October a little nodosity, more limited and harder, was still perfectly perceptible beneath the skin of the lid, which it raised a little from the naked eye. It was still a little sensitive to palpation, but the sensitiveness was diminishing day by day. It did not present any change either in the different attitudes, raising or lowering the head, or during exertion.

The palpebral ecchymosis and the swelling of the face have entirely disappeared.

November 12. The little fibrous residue had again diminished in volume. There was no more pain. The skin of the affected region had resumed its normal appearance.

November 20. The little which remained of the sanguineous pouch had again become slightly sensitive, but there was no increase in volume. There appeared this morning a slight swelling, diffuse and a little bluish, at the superior internal angle of the orbit. The blue color had already disappeared toward evening. Still not the slightest sign of increase, no pulsation, no souffle, no reducibility of the tumor. At the same time that this swelling appeared there were nausea, malaise, and sharp pain as in the beginning of the disease.

December 8. The swelling which appeared on November 20 still persists, and has even increased a little, while the blue coloration of this region disappeared at once. There is no question of a puncture because of the absence of a circumscribed collection of fluid, for the swelling is diffuse. I advised the use of prolonged and methodical pressure upon the eye.

January 15, 1897. From this time the patient observed, in the supero-internal angle of the orbit, alternate bluish swelling and reduction of this swelling. The tumefaction never attained the degree remarked during the first attack, and the pains were also less acute. In two or three days all returned to the normal condition under the influence of pressure bandages. These phenomena reappear from time to time without any regular periodicity. Between the crises the region remains a little hard and swollen, and slightly sensitive. This alternate appearance and disappearance of the spontaneous sanguineous effusion in the tissue of the lid and orbit lasted for a month, after which everything returned to the normal. On the 8th of February every trace of primary hematoma had disappeared.

Recently a condition has appeared upon the side of the mouth of the same nature as the orbital-palpebral hematoma of which we have spoken. The gum has become swollen and bluish to a certain extent, and a slight touch at this point causes a little blood to flow.

HAY FEVER.

BY FREDERICK D. LEWIS, M. D., BUFFALO, N. Y.

IN selecting the above subject for my paper, I feel that some explanation is due. This disease was first described by Dr. Bostock of London in 1819, and has had for many years almost annual consideration, when the same subject-matter has been clothed in new forms of language and discussed in the same general terms, with no definite conclusions arrived at as to its origin or treatment. A few years ago operative treatment with the galvano-cautery became quite the rage, and in some cases proved of service. However, like most new ideas, for a while it was used extensively and indiscriminately in all cases, with the result that in many instances irreparable damage was the consequence. This treatment was preceded and followed by so many fads that were advanced as sure cures for this troublesome complaint, that now sufferers of long standing have concluded that it is incurable and suffer in silence—no, not in silence, but to the infinite discomfort of their friends and families, who are favored with displays of their irritable temper during the several weeks of the attack, or, if the patient has sufficient means, he hastens to the locations that are immune from the dread complaint, there to remain in exile until the first severe frost, when he may again return home in safety.

Heretofore our treatment of cases has consisted in thorough cleansing of the nasal mucous membranes, cocaine used as spray or swabbed for temporary relief, and the indicated remedy administered internally—but has this

proved curative? Cannot any of us count on his fingers the number of his hay-fever cases that he has pronounced permanently cured? We can certainly moderate and make more bearable the attack or delay its onset or shorten its duration, but it will surely recur year after year unless the cause is ascertained and removed. The apparent cause may be deformities, enlargements, or growths within the nasal cavities, which will require surgical treatment. But in even these cases is there not a constitutional condition to provoke the well-known symptoms, or if not, why do not all of our patients with like nasal defects suffer with hay fever? And again, in many instances the upper respiratory tract on examination will be found practically normal between and for periods of varying length during the seizures.

I think at the present time arguments need scarcely be advanced to prove it to be a neurosis, as there are but few who do not concede this point. Being then a neurosis, the name or names by which it has been known do not carry with them a proper idea of the disease. Therefore I would beg to substitute one suggested by Professor Bishop of Chicago in his excellent work on "Diseases of the Nose, Throat, and Ear," recently published—"Nervous Catarrh." The chapters devoted to hay fever in this able volume treat the subject so thoroughly and logically that I will quote freely from them. He says, "There are three conditions upon which the existence of the disease depends. (1) Abnormally susceptible nerve centers; (2) hyperæsthesia of the peripheral termini of the sensory nerves, and (3) the presence of one of a large variety of irritating agents. Exclude one of these conditions, and the paroxysms are prevented."

When Professor Haig's work on "Uric Acid in Causation of Disease" was published it received universal attention, owing to the ideas he advanced. Bishop in 1893 proposed the uric-acid theory of nervous catarrh, and in his book gives Shawe Tyrrel of Toronto the credit of the same idea advanced a year previous.

Many arguments are brought to bear in proving this to be the case, the strangest of which is that cases treated on this supposition have improved very quickly, the paroxysms have ceased, and they have been apparently well. Then alkali in the form of bicarbonate of soda has been administered with the result of a return of all the symptoms, and then disappearance upon returning to the treatment on the theory of a uric-acid diathesis. The fact that many cases are relieved by nasal surgery does not disprove the uric-acid theory. The fact of nasal defects existing has attracted to that location the center of the nervous storm resultant on the accommodation of uric acid in the blood. When these defects are removed the condition of nervous catarrh ceases, but, unless followed by treatment, is it not only shifting the center of the nerve storm to some other location? Would it not be better to call it a transfer instead of a cure of the disease? I do not mean by this statement to discourage operations, for abnormal conditions should be corrected when found, whether the patient is a sufferer from nervous catarrh or not. The fact that the most distressing attacks are during the morning hours is also an argument in favor of the uric-acid theory, as the blood is more alkaline during the small hours of the morning, and thus dissolves from the more alkaline tissue the uric-acid that has been stored there. Thus, during the morning hours the blood is most heavily charged with this irritant, and the result is an aggravation to the nerve-centers affected. The treatment, therefore, should be directed toward the prevention of the formation of uric acid in the system, and its elimination. First of all, then, to consider is the diet. Meats, eggs, and fish should be reduced to the minimum, and substituted with milk, fruits, vegetables, etc.; then remedies such as dilute phosphoric acid or salicylate of soda given for its elimination. If the attack has set in before treatment has been begun, local treatment will be necessary to give relief as soon as possible. I will close by citing a case I have treated this year, the result of which has been very marked.

CASE. The gentleman has been under my observation for several years, and my treatment until this year has only alleviated his sufferings. His symptoms appear August 21 regularly, to continue until the first hard frost. With regular daily spraying with alkali solutions followed by menthol camphor spray, and the taking of remedies selected in accordance with the law of similars, he has previously been enabled to remain to conduct his business, which is that of a large manufacturing concern, and very trying, until perhaps the middle of September; then his sufferings have become so unbearable that he has been compelled to seek relief in flight. This condition has existed with him for over twenty years. His son, now about twenty-five- or six years old, has inherited the trouble, and is now in his tenth year with it.

This year the father came to me on the fourth day of the attack. I prescribed for him internally salicylate of soda three-grain doses, three times daily, with one or two teaspoonfuls of Horsford's Acid Phosphate in a glass of water at night before retiring. Each night he was to come to my office to have the nose thoroughly cleansed, and take a treatment that I have found very beneficial, as follows: I have an apparatus called The Universal Pulmonary Inspirator, which consists of a metal heater about fifteen inches in height, lined with asbestos, and connected with the gas. The air is admitted below, and passes the remedy contained in a perforated cup before reaching the patient. The degree of heat I have used is from 300° to 350°, and five or six drops of the following solution are put on asbestos wool placed in the cup:

Naphthalini.....	gr. lxxx
Ether Sulphurici.....	3 j
Menthol Crystals } a a.....	3 ij
G. Camphor	
Ethol Iodidi ..	3 ss
Ext. Stramonii } a a.....	3 j
Tr. Hyosyami	
Tr. Opii.....	3 j

This is vaporized by the heat, and inhaled for twenty minutes to half an hour.

After about a week of this treatment, my patient ceased coming daily, but only on recurrence of symptoms. Instead of sitting up half the night as he frequently did heretofore, sneezing and mopping his nose, he slept well, and attended to his business

every day. I think with treatment commenced early next year his attack may be completely aborted.

I also gave him a pocket inhaler to carry which I have found of great use. It consists of a glass tube open at both ends, a perforated cork at each end keeping in position a piece of absorbent cotton on which is dropped about twenty-five drops of a solution formed by triturating together equal parts of menthol, salol and camphor. This can be used anywhere to prevent an attack of sneezing.

I do not think, in advocating this treatment, I am violating any of the laws of homeopathy. The disease or symptoms under consideration are the direct results of a poison in the system,—self-formed to be sure,—and our attempts at cure should be directed first to prevention, and next to elimination. And the object of the paper will be attained if it promote a wide and thorough discussion.

ABSTRACTS FROM CURRENT LITERATURE.

Dunn, Jno.—Partial Detachment of the Superior Temporal Vein of the Artery.—*Annals of Ophthalm.*, July, 1897.

The patient, a male, aged thirty-two, had previously had in the right eye extensive retinal degeneration, together with a small and a large opacity in the vitreous, evidently the result of hemorrhage. Vision was useless. One opacity, situated directly behind the lens, was of the usual non-refracting cobweb variety, seen in old cases of degenerated vitreous. The other was fixed, highly refractive, and under brilliant illumination of almost snowy brightness; resembling, in color and appearance, a fleecy cloud. The surface of this opacity could be distinctly seen with a + 8 D. It was very irregular in shape, having several long projections in color and appearance similar to the main body. These projections had free ends in the vitreous. As the lenses in the ophthalmoscope were one by one changed through the scale from + 8 D. to 0, at the same time making the patient change the position of his eyes slightly, it could be seen that this white body in the vitreous, large at the top, was connected with the fundus by four roots, calling to mind the pictures of the banyan tree. Each root terminated in a vein. On examining the course of the superior temporal vein, from the disk toward the periphery, the vein could be seen to lie in the retina up to its third bifurcation, which was situated slightly external to and considerably above the region of the macula. Beyond its third bifurcation, the vein was seen to leave the retina and come directly forward into the vitreous, as the trunk of the opacity; shortly after leaving the retina it was markedly thinned, and surrounded by a broad white sheath, three or four times its own diameter, in color and appearance identical with the large opacity above mentioned. This vein, surrounded by its sheath, could be traced to a point beneath

the summit of the opacity, from which point there extended at different angles, downward into the retina, two white projections, each of which bifurcated before it reached the retina. In the center of each of these projections could be seen a dark streak which was a branch of the supero-temporal vein ; after entering the retina, these attenuated veins could be followed for a considerable distance. The retina was nowhere detached and could be seen in its normal position between the ascending and descending projections above referred to, and beyond them as far as the visible limits of the fundus.

Here was a case of disease of the retinal vessels, with a forcing forward of a segment of a vein with its branches into the vitreous. Hemorrhage from a large vein had taken place in a considerable quantity, making a rent in the overlying retina and hyaloid ; the blood, accumulating about and behind the vessel, forced the latter through this rent and into the vitreous. The hemorrhagic extravasation saved the fibrinous portion, being later absorbed ; the fibrine, remaining about the vessel and attached to it, prevented the return of the vessel to its bed, on the absorption of the hemorrhage.

DEADY.

Ward, M. R.—Papilloma of the Larynx Recurring as an Epithelioma.—Report of a Case.—*The Laryngoscope*, July, 1897.

The author reports the case of a young lady aged seventeen, of German parentage, whose personal and family history was negative. After an attack of epidemic influenza, from which she soon recovered, she noticed that her voice was growing husky. She consulted a physician, who discovered a growth on the vocal cord. Five months later this growth was removed, and pronounced by a competent pathologist to be a papilloma. Four months after this operation she consulted the author, who found the false cords inflamed and swollen ; while the anterior half of the left vocal cord was destroyed by ulceration. Local treatment was of no avail and the condition continued to grow worse, assuming the appearance and showing symptoms strongly suggestive of malignant growth. At the end of four months it was found necessary to perform thyrotomy. Nodular masses were found below the left cord and removed ; the remainder of the larynx seeming to be healthy.

The microscopic examination gave rise to serious apprehension of the return of the growth in the form of an adeno-epithelioma.

The disease soon showed evidences of return, and a laryngectomy was decided upon and performed. The diseased parts were all removed, but the growth soon returned in the old cicatrix, and in a little over four months the patient died from exhaustion.

The author then presents very clearly the present status of the question of the malignant degeneration of benign tumors of the larynx, of which this case would seem to be an example. Attention is called to the fact that several pathologists have arrived at different conclusions after examining the same specimen, and the confusing nomenclature adopted in describing laryngeal growths may be held responsible for some of these differences.

"Finally, ruling out sarcoma on account of its rarity in this location, the problem that usually confronts the pathologist, as far as the larynx is concerned, is the diagnosis between papilloma and squamous epithelioma. The chief source of error here lies in the fact that it may be impossible to differentiate histologically between a simple papilloma and the superficial layers of a malignant growth which so frequently are removed in the form of 'papillary outgrowths,' thus often making the picture of the two neoplasms both macroscopically and microscopically identical, and the laryngologist must recognize the fact that, unless he includes the deeper layers in his specimen, the microscopist's opinion is open to doubt and uncertainty." PEARSALE.

[The point brought out in the last paragraph is of the greatest importance, and should be borne in mind by the laryngologist when removing specimens for microscopical examination, not alone from the larynx, but from any portion of the mucous membrane of mouth, nose, or throat, when a knowledge of the microscopical condition may seem desirable.—ED.]

Murrell, T. E.—Scopolamine Hydrobromate as a Cycloplegic.—*Archiv. of Opth.*, July, 1897.

The writer has been using this agent exclusively, for the determination of refraction, for two years, and reports the following conclusions: The drug is ten times as powerful and ten times as toxic as atropine, its poisonous symptoms being similar to those of the latter. He has never used a stronger solution than $\frac{1}{10}$ of 1

per cent., instilling the drug twice with an interval of ten minutes. In ten minutes the pupil begins to dilate, and almost at the same time the accommodation is affected. In fifteen minutes the pupil is widely dilated and the patient unable to read small print. Accommodation is totally suspended inside of an hour, and the suspension remains total for several hours. In twenty-four hours the cycloplegia begins to decline. At the end of forty-eight hours it has well-nigh passed away. In seventy-two hours it has generally totally disappeared. In time of inception and termination of cycloplegia, scopolamine in the $\frac{1}{10}$ of 1 per cent. solution is the most uniform of any agent he has ever used. A weak solution of eserine, $\frac{1}{4}$ gr. to the oz., used a few times at intervals of six hours, will effectually restore the accommodation. The drug appears to be germicidal or fungicidal, no spores or evidences of deterioration having ever appeared in any solution after a year or more. Neither does it lose its strength or activity from the lapse of time.

The writer concludes with the following summary: 1st. Scopolamine Hydrobromate is the most positive and prompt cycloplegic we have.

2d. It should not be used in a stronger solution than $\frac{1}{10}$ of 1 per cent.

3. Two instillations at most are all-sufficient for the most thorough suspension of the accommodation.

4. It is free in this strength from the danger of increased tension, and causes no redness of the conjunctiva nor engorgement of the choroid, and no unpleasant symptoms other than those due to its physiological action.

5. It is convenient to use, reliable in its results, safe, keeps well, and possesses fewer objections than any other known cycloplegic.

DEADY.

[We can hardly endorse the above so far as the strength of the solution is concerned. We have seen cases in which a solution of 1-600 failed to fully paralyze the ciliary muscle. We habitually use a solution of 1-200 and have never seen any untoward results either from a tendency to glaucoma or from symptoms of poisoning.—ED.]

Mullen, J. A.—A Case of Inflammatory Glaucoma of Reflex Nasal Origin.—*The Laryngoscope*, August, 1897.

The patient, a woman, aged forty-five, mother of three children. Youngest child seven years. Several hours previous to

the birth of the last child she suffered from severe pain in right eye, which passed away soon after the completion of confinement. Some time afterward she noticed a ptosis of right upper lid and an external squint of the right eye. Three months previous to applying to Dr. Mullen she had a return of a similar pain in the right eye, spread over temple, vertex, and occiput. An iridectomy increased rather than relieved the pain. When first seen the author describes the following conditions:

Pupil widely dilated, oval in shape, the long axis vertical. Iris held down by complete posterior synechia, anterior chamber shallow. Tension plus. Lens rapidly undergoing opacification. Ptosis of right upper lid and external squint of same eye.

Examination of the right nasal chamber showed occlusion of the middle and superior meatus, due to enlarged middle turbinated. Pain relieved by cocaine applied to hypertrophy. The enlargement was almost cartilaginous in structure. Its removal relieved the pain, and the normal tension of the eye returned.

PEARSALL!

Hill, Robert.—Two Cases of "Electric Light Blindness."—*London Lancet*, July 24, 1897.

CASE I. About 1 A. M. on June 1, 1897, I was called hurriedly to see a man who was said to be suffering great pain in his eyes. The man, a stoker, twenty years of age, I found walking round the sick bay of his ship in an agony of pain, with his hands up to his eyes from which the tears were literally pouring. The lids were kept firmly closed, and all my efforts to see the eyes proved futile until I had dropped in cocaine, which acted like a charm. Five minutes later he could distinguish the number of persons in the room, but not the number of fingers held up. The pupils were moderately dilated (probably due to the cocaine); the palpebral conjunctiva was deeply congested, with but slight reddening of the bulbar conjunctiva; the cornea was clear. I imagined some irritant had been applied, but he denied this, nor could I find any trace of any substance, such as pepper, likely to cause the condition. Cold applications were used, and the patient soon fell asleep. At 8 A. M. his vision was normal, but the conjunctiva was injected, and he complained of a sticky sensation in his eyes. He then gave me the following history: When at work in H. M. S. *Mars* on the afternoon of May 31, he had stopped for

about three minutes to look at the electric drill which was being used to bore holes in a steel plate, standing at a distance of from ten to twelve yards; on resuming his own work everything appeared to him of a deep gold color, but he had no pain or lachrymation. He turned into his hammock at 9 P. M., and woke up in great pain at 12.30.

CASE II. At 9 A. M. on June 1, a stoker, aged twenty-eight years, who had been sleeping on shore, came to the sick bay complaining of his eyes. He stated that he had been working in H. M. S. *Mars* on the previous afternoon, and, like the patient in Case I., had stopped to see the electric drill working, and had noticed during the remainder of the day that everything appeared of a deep gold color. About 4 A. M. he had jumped out of bed in great pain, and this had lasted about an hour and a half. The condition of the eyes was very similar to that described in Case I.—injection of the conjunctiva being the only abnormal condition. Vision was normal.

Ever since the electric light has been in use workers at this trade have been subject to attacks of blindness, and cases have been recorded in which erosion of the cornea has followed the inflammation induced. Dark glasses are now always used by men so employed. The electric drill acts by fusing a hole through the steel, and probably the intensity of the light is greatly increased by the rays of light thrown off by the molten metal. The fact that the work is carried on chiefly in the daylight hides to a casual passer-by the extreme brilliancy of the light, and it is not until the patient experiences abnormal color sensations that he is aware of anything extraordinary.

The pathology of this condition has been stated to be similar to that of snow-blindness or desert blindness, and to depend on irritation of the branches of the ophthalmic division of the fifth nerve. In the cases above recorded the irritation would appear to have gone on to absolute paralysis, and the pain to have been due to the acute congestion attending the nerves in their action of regaining their normal function. A somewhat analogous train of circumstances is found in the paralysis of the sensory nerves of other parts of the body when exposed to extreme cold, such as the ether spray or frost-bite, and the pain in these cases is often very great when the congestion attending the "coming to" of the part takes place. The short period during which the

severe pain lasted is also in favor of this analogy. The close sympathy that exists between the second nerve and the branches of the ophthalmic division of the fifth nerve is shown in many common and well-known reflexes, such as lachrymation and sneezing on sudden exposure of the eye to a bright light, or, conversely, the dread of light that is caused by any injury to the cornea. In the class of cases described we have a marked instance of the first class of reflex. A temporary paralysis of some of the optic nerve terminals is induced by the exposure to the intense light and heat of the electric drill as shown by the subjective color sensations experienced. The corneal terminals reflexly share in the paralysis; lachrymation and photophobia are absent, because the nerve terminals are paralyzed and not merely irritated at the time. After the lapse of a few hours a reaction with temporary congestion is set up, as manifested by the acute pain and lachrymation, and probably some mistiness of vision. The longer the exposure to the bright light, the profounder the paralysis and the more intense and lasting the reactionary symptoms. These cases are, in fact, analogous to snow-blindness, and, as in them, the pernicious effects of the electric light are probably due to the ultra-violet rays of the spectrum. DEADY.

Mellinger and Bossalino.—Experimental Studies on the Extension of Fluids Injected beneath the Conjunctiva.—*Archiv. of Ophth.*, July, 1897.

In their experiments the authors made use of white rabbits, with absolutely normal eyes, as determined by a careful examination. As injecting material, emulsions of India ink, sterilized by boiling, were used, by means of a sterilized Pravaz syringe. The canula was invariably inserted parallel with the corneal margin, and never in a meridional direction. The injection was always made very slowly, never with more than half a syringe-ful, the syringe and needle being dipped into absolute alcohol just previous to the injection. As a result of the absolute sterilization the eye remains perfectly free from irritation. On the following day, the skin of the eyelids is blackened, the whole conjunctiva around the corneal margin is jet black, and the fold reflected on the lower lid is grayish. The iris, reddish pink before the injection, is streaked bluish black, and shows fine black lines running parallel with the pupillary margin. The media of the eye are per-

fectly clear and transparent, and some fine dark spots are seen in the periphery of the retina.

In the next four weeks, several injections were made, but no new appearance became visible in the fundus of the eye, although the old ones were more distinctly defined. The rabbit was then killed and after hardening in Mueller's fluid, and undergoing proper treatment, sections of it were examined. In the conjunctiva accumulations of the ink were found, at the limbus of the cornea in the wide-meshed connective tissue beneath the epithelium and penetrating into the sclera for about one-third of its thickness. On examination of the cornea with low powers, the lymph spaces resembled fine black threads—with higher powers these are seen to be composed of fine granules of ink, which lie along the walls of the spaces. The lymph spaces of the sclera show ink granules, which increase in number as they near the optic nerve. All of the muscles are infiltrated with ink in their connective-tissue sheaths, and it follows the connective tissue surrounding the bundles. Large deposits of ink are found in the intercellular substance of the optic nerve and in the fatty tissue. Very few granules are found in the uveal tract, and these especially along the lines of connective tissue. No trace was discovered in the retina. The fluid passes along the connective-tissue spaces by the muscles and into Tenon's space, along the lymph paths reaching the suprachoroidal space and the dural sheath of the optic nerve. They conclude with certainty that subconjunctivally injected fluids, following the greater lymph spaces, surround the entire globe, and they are inclined to believe that in addition such fluids by paths of communication can communicate with the suprachoroidal and intervaginal spaces of the optic nerve.

DEADY.

Bottomé, F. A.—A Case of Pyorrhœa Alveolaris, Following Operation upon the Nasal Septum.—*The Laryngoscope*, July, 1897.

The writer relates the history of a man aged forty, from whom he removed an exostosis from the right side of the septum. The growth was sufficiently elevated to permit of its removal without injury to the floor of the nose during operation with the saw. Following the operation there was an intense neuralgia involving the teeth of the upper jaw. This disappeared by the second day,

from all the teeth except the first upper right incisor. Examination by a dentist showed nothing further than neuralgia and looseness due to the operation. The pain continued until the fourth day, when swelling and redness were discovered at the base of the tooth, and upon incision there was a considerable discharge of pus. After this the pain ceased and the tooth became firm.

A month later a similar spur was removed from the left side, and the same history of neuralgia and pus formation at the base of the left incisor was repeated. The neuralgia following such operations is not uncommon, but the origin of a true pyorrhœa is not so easily explained. There was no formation of tartar on the teeth which could have caused the local trouble, and it would seem probable that the condition must have been dependent upon injury to the naso-palatine nerve.

PEARSALL.

Behrens, B. M.—Removal of the Drumhead and Malleus in Cases of Negative Rinné.—*Internat. Med. Mag.*, May, 1897.

The writer has performed this operation in thirty-four cases of extreme deafness, of which the first thirty, which were made without the indication of negative Rinné, were failures or nearly so, while the last four, in which negative Rinné was present, were distinctly successful—so much so that he is led to consider the non-existence of negative Rinné as counterindicating the operation.

A test which he considers of great prognostic value as to the result of the operation is that of preliminary incision in the drumhead, to permit the waves of sound to reach the labyrinth. He advises that it be made back of, and along the manubrium from top to bottom. If it produces no improvement of hearing, a piece of iodoform cotton is placed in the incision and in a couple of days the damage is repaired and no harm is done. He has made this test in more than one hundred cases, and has never seen any ill effect from it. In cases where hearing improved after the preliminary incision the operation has been very successful, and *vice versa*; although the post-operative benefit to hearing has not been equal to that resulting from the test.

As an additional reason for making the preliminary incision, he cites the difficulty in obtaining exact results in the comparative investigation of perception and aërial conduction, either

because of the difficulty of obtaining satisfactory replies from patients of only average intelligence, or from fatigue of the ear.

By examinations made upon healthy ears with the big C fork, he finds that the proportion of perception to aërial conduction, where good hearing exists, is as 2 to 3. If perception for the fork is 60 seconds, aërial conduction is 90. A negative Rinné therefore means a reduction of more than 30 seconds of aërial conduction.

He presents histories of the four successful cases, in each of which extreme deafness had existed for years. Perception for the tuning fork was good, Rinné was negative, and all ordinary forms of treatment had been used without result. In each case, after the operation, hearing for the voice was increased by from seven to ten feet. At present he operates only upon cases having negative Rinné, and states that if he were to exclude any special disease of the middle ear, as contra-indicating the operation, it would be sclerotic catarrh, as he considers the rigidity of the membranes in the oval and round windows cannot possibly be benefited by removing the drumhead and malleus, or even if the incus be included. He considers that this statement also applies to similar conditions of anchylosis, caused by purulent middle-ear disease, or where the internal ear is secondarily affected. The effects of serous, or sero-fibrinous catarrh, or affections of the membrana tympani with subsequent rigidity or flaccidity, and the mechanical effects of disturbed ventilation of the middle ear, from diseases of the eustachian tube or its adnexa, are the conditions which he thinks are most likely to be benefited by the operation.

He states, in summary, that if Rinné is distinctly negative, and preliminary incision is followed by improved hearing, then and only then is the removal of the drumhead and malleus indicated.

DEADY.

Marsh, J. H.—Acute Suppurative Middle-ear Disease in Infancy.—*British Med. Jour.*, July 24, 1897.

I have had during the last three months under my care four cases of acute suppurative middle-ear disease in young infants. The children were all under six months of age, and in none of the cases was there any history of specific fever, diphtheria, or injury to account for the onset of the disease.

The earliest symptoms were restlessness, vomiting, refusal of food, and feverishness. In two of the cases the abdomen had been carefully poulticed and teething powders administered under medical directions. One of the cases simulated acute meningitis, and in another no treatment had been applied to the ear until the child was brought to me suffering from complete unilateral facial paralysis. In this case the onset had been insidious, constitutional disturbance being less marked. The discharge had in all the cases been going on for some weeks previously; the pus was fetid and occasionally sanious.

It was, of course, impossible in infants so young to test the hearing power. Examination with the speculum showed that in three of the cases the disease was unilateral; in the remaining one it was bilateral. The membrana tympani was perforated in all the cases, and in two Shrapnell's membrane was involved.

In the case attended by facial paralysis the whole of the tympanic membrane seemed to be destroyed, none of the ossicles were visible, and the middle ear was filled with highly vascular granulation tissue, from amongst which pus was freely oozing. Tenderness and "eggshell crackling" were well marked on pressure over the mastoid. There was also secondary corneal ulceration on the same side.

Under these circumstances I at once freely opened the mastoid antrum and scraped away a quantity of granulation tissue and débris, from which the bleeding was fairly free, and, finally, I gently syringed through a warm saturated solution of boracic acid, plugged the antrum, wound, and ear with iodoform gauze, and dressed with absorbent iodoform wool. There was no difficulty in opening the antrum, a mere shell of bone constituting the outer wall. The result was satisfactory; the discharge is rapidly ceasing, the granulation tissue has not returned, and the facial paralysis is slowly recovering.

In the other case of attic suppuration, I washed it out daily through the perforation by means of an intratympanic syringe, after previously removing a polypus. Izal lotion was used as being a comparatively unirritating, but powerful antiseptic; after carefully drying out with iodoform wool, a few crystals of acetanilide were insufflated. Acetanilide reduces the amount of discharge, keeps the cavity sweet, and does not form an impervious scab, like iodoform.

In the remaining two cases, including the bilateral one, the perforation was situated below and behind the handle of the malleus and was of the "pinhole" type. Gentle daily irrigation with izal lotion, and insufflation of acetanilide, resulted in a speedy cure.

These cases are, I think, of interest as showing how acute primary inflammation of the middle ear may give rise to grave errors of diagnosis, the case frequently being mistaken for one of acute primary meningitis, acute gastro-enteritis, or teething fits, and much valuable time may be lost while the abdomen is being carefully poulticed or the gums lanced.

The early symptoms which should suggest the ear as the cause of the illness are :

1. The child constantly endeavors to rub the affected ear.
2. It utters a sharp cry of pain on pressure being made below the meatus.
3. It refuses to rest its head on the affected side.

The onset of convulsions usually indicates severe cerebral hyperæmia, retracted head, followed by coma ; actual meningeal inflammation, usually by extension. It is during the early stage that the greatest benefit follows from the use of Politzer's bag with warm instillations.

Field states that the bag is not requisite for young children—blowing into the nostrils through a piece of rubber tubing is amply sufficient. Paracentesis is indicated, if there is bulging of the membrane. Poultices only tend to increase the suppuration and so promote rupture of the membrane.

The rapid cure which follows on the use of thorough cleanliness and mild antiseptics and astringents suggests that in the majority of these cases the disease is primarily an acute catarrhal inflammation of the mucous membrane of the middle ear, which, owing to the tension of retained secretion, becomes suppurative. In some no doubt it is primarily tuberculous.

Milligan, in the *Medical Annual* for 1896, points out the extreme difficulty of microscopically demonstrating the presence of tubercle bacilli either in the discharge from the ear or in the scrapings removed after opening the mastoid ; subcutaneous inoculations being usually required to establish a definite diagnosis.

The clinical signs which would suggest that the lesion had a

tuberculous origin are : (1) A slow non-sthenic onset ; (2) early glandular enlargement ; (3) early facial paralysis ; (4) resistance to the ordinary measures of treatment ; (5) the presence of other tuberculous disease. These cases require the establishment of a free opening into the middle ear through the mastoid.

DEADY.

Shearer, T. L.—Some Interesting Cases.—Persistent Falsetto Voice in the Male, etc.—*The Hom. Eye, Ear, and Throat Jour.*, June, 1897.

The patient was a healthy, well-built young man of twenty-seven years. Had been free from all diseases (including venereal). When twenty-one years of age he studied and practiced ventriloquism. This required the frequent use of the falsetto voice. He gradually and imperceptibly began to speak in high tone in ordinary conversation. Finally he could only speak in falsetto. This was very embarrassing, and he had sought in vain for relief. Examination showed the larynx and surrounding tissues perfectly normal, and a diagnosis of chronic hysterical falsetto voice was made. Treatment was instituted by asking him to phonate "Ah" in as low a tone as possible. He was able to produce a gruff tone by imitating the writer's voice. Exercises of this kind were continued, until finally he recovered confidence and could speak in an ordinary tone of voice.

The second case was of a young lady of slight build and delicate appearance, who suffered from a persistent cough, with slight hemorrhages, more frequent in the early morning. Examination of the chest discovered no signs of tuberculosis, and no bacilli were found in the sputum. The larynx did not present any bleeding point; there were no foci of ulceration, and the vessels of the pharynx and base of the tongue were in good condition. The buccal cavity was healthy. The nasal and nasopharyngeal mucous membranes were normal, with the exception of one small point on the posterior extremity of the inferior turbinate, where a few dried flakes of blood were seen. Local and internal treatment promptly relieved both hemorrhage and cough.

The third case was one of abscess of the septum. The pain and swelling were intense; the fever was accompanied with delirium. The inflammation spread rapidly toward the frontal region. Free incision of the abscess was followed by discharge of pus and relief of all the symptoms.

PEARSALL.

Delevan, D. B.—A New Method of Permanent Relief of Certain Enlargements of the Turbinated Bodies.—*Medical Record*, June 12, 1897.

The author describes a simple method of reducing enlarged turbinated bodies without causing the destruction of the mucous membrane. This he accomplishes by introducing into the enlarged tissue a small, needle-shaped knife, which is swept around through the submucous tissue. By this means the blood vessels of the cavernous tissue are broken up and, after absorption and healing, the enlargement is reduced. The only opening is a small one, and the mucous membrane is preserved intact.

PEARSALL.

Moure (Bordeaux).—Surgical Treatment of Chronic Dry Otitis Media.—*Medical Week*.

Surgical intervention is especially beneficial in cases of chronic dry otitis media in which there are thickening of the tympanic membrane and rigidity of the apparatus for the transmission of sound, and in which the auditory nerve is healthy. All otologists, in fact, are agreed that there is no chance of success from an operative treatment unless the nervous apparatus is normal. When the lesion is slight, the condition of the auditory nerve can only be ascertained by complete functional examination of the patient. Exploratory paracentesis of the tympanic membrane is also useful, because cases in which this operation improves hearing are certainly most favorable for a more complete intervention. The operations which may be performed in such cases are simple perforation of the tympanum, tenotomy of the tensor tympani, mobilization of the chain of ossicles, or total myringectomy with ablation of the handle of the malleolus and removal of the entire chain of ossicles, including the stapes.

The majority of these operations appear to be no longer in use; those principally employed at present being myringectomy with extirpation of a part of the malleolus, or ablation of the tympanic membrane, malleolus, and incus, leaving the stapes.

The question presents itself whether it is preferable to operate through the natural channels (auditory meatus), or to first detach the pinna and pierce the postero-superior wall of the osseous canal (Stacke's operation), in order to reach the ossicles.

Comparison of the results obtained by these methods shows

that intervention through the natural channels, while being much the simpler and easier of the two, gives as good results as Stacke's operation, which is by far more serious and trying to the patient. The only advantage, in fact, which the latter possesses is that the operator is enabled to see what he is doing; he may even go too far and press too hard on the stapes, and through this on the labyrinth. By the natural channels, on the contrary, there is no danger, if the operator is careful, of doing any damage in the tympanic cavity.

DEADY.

Proskauer, Th.—Formol in the Treatment of Trachoma.—*Medical Week.*

The diseased region is first anæsthetized with a strong solution of cocaine, and then rapidly and lightly gone over with a brush, dipped in a one per cent. solution of formic aldehyde. The patient at once feels a burning pain, which is, however, made bearable by the cocaine, and soon disappears, so that he is enabled to open his eye within from five to ten minutes. On the following day there is slight hypersecretion of the conjunctiva, without any notable swelling of the eyelids, which, on the contrary, if previously infiltrated, very rapidly resume their normal position and size. When the contact of the solution with the mucous membrane has been too prolonged or too energetic, it may lead to genuine inflammatory reaction; it is then necessary to allow the organ to rest for a few days.

When there is no such irritation, however, the applications of formol may be repeated every day.

Within the first week the granulations and papillæ begin to decrease in size, and shrivel, without sloughing. By the end of a fortnight, in certain cases, the conjunctiva has already become perfectly smooth, and the pannus, if it existed, ceases to develop. Should the treatment, when it has reached this point, be discontinued or persevered in; the solution of formol merely being made weaker? Dr. Proskauer does not pretend to answer this, the cases under his observation not having been sufficiently numerous as yet; but he considers that one fact is well established, viz., that the results obtained with formol in the treatment of trachoma are more rapid than with any other application; that it enables the patient to continue to work as usual; and, lastly, that it does not leave any cicatrices, liable to lead to subsequent retraction of the eyelids.

DEADY.

Beaumont, W. M.—Aseptic Foreign Bodies in the Eye and Orbit.—*London Lancet*, August 28, 1897.

The three following cases illustrate the tolerance with which the eye submits to injuries caused by aseptic foreign bodies :

CASE I. *Foreign body in the vitreous removed by the electro-magnet.*
—A young man, aged eighteen years, was using a chisel and mallet repairing an iron pipe, when a minute particle of metal flew off and pierced his left eye. He suffered a certain amount of discomfort from photophobia, but did not present himself for treatment at the Eye Infirmary until February 18, 1897, a fortnight after the accident. The course of the foreign body could be traced by a scar nearly in the center of the cornea, a second scar a little more internal on the interior capsule of the lens, and a third still more internal on the posterior surface of the lens. The eye having been pierced in a slightly oblique direction, the scar on the cornea could scarcely be seen ; but those of the lens were distinct and their opacity gradually shaded off in the substance of the lens. With the ophthalmoscope, the foreign body was at once seen floating in the vitreous, rising and falling with every movement of the eye, and refracting light much as the crystals of cholesterine do in a case of synchysis scintillans. By oblique illumination it could be equally well observed, and when an electro-magnet was brought close to the eye, the particle came forward against the posterior surface of the lens, and was held steadily in that position by the attractive force of the magnet. As the foreign body had been in the eye for a fortnight and there was no opacity of the vitreous, it was quite certain that the fragment of metal was aseptic ; for unless it were sterile, it could not have remained so long a time in such a soil without the development of pathogenic organisms or the formation of an enveloping capsule ; Leber's and Von Hippel's investigations having shown that inflammatory action in these cases is set up by septic matter introduced at the time of the accident. But apart from sepsis there were other considerations to be taken into account. Even if it did not give rise to trouble by becoming oxidized, still a foreign body freely moving about in the eye is always a source of danger. It was clearly necessary to remove it and, considering the favorable conditions of the case, it was improbable that there was any risk to fear or difficulties to contend with in so doing. The patient was anæsthetized, and an incision

made through the conjunctiva behind the ciliary region and between the insertions of the external and inferior recti muscles. One edge of the cut conjunctiva was then retracted and the sclera transfixed by a Gräfe knife in such a manner that the wounds of the sclerotic and conjunctiva were at right angles to each other. Through the opening thus made the pointer of an electro-magnet was passing, but on withdrawing it the first time the foreign body did not accompany it. The second attempt was successful, and a minute chip of metal was brought away clinging to the pointer. At the same time there was an slight loss of vitreous. The conjunctiva was stitched up and a pad put over the closed lids to keep the eye perfectly at rest. Two days later the sutures were removed from the conjunctiva, the wound of which had quite healed, and in a few more days the patient was convalescent. An interesting point in the case was the fact that although the foreign body weighed but half a milligram, it acquired momentum sufficient to carry it through the cornea and lens. The opacities in the lens have not increased, and now, six months after the injury, his vision is $\frac{6}{18}$.

CASE 2. *Foreign body embedded in the ciliary region.*—A man, aged forty-two years, while working as a blacksmith, was struck by a piece of metal from the anvil on the right eye. He was seen within two hours of the accident (January 27, 1897), and a piece of iron was found buried in the ciliary region to the outer side of the corneal limbus. The pupil was occluded by, and the anterior chamber half full of, blood. The tension of the eye was slightly decreased (?). Removal of the foreign body by forceps was followed by smart hemorrhage, and the vitreous presented. The jagged wound was carefully washed out with sublimate solution (1-4000) and the edges of the torn conjunctiva brought together by silk sutures. The patient was kept perfectly at rest in bed for three days, by which time the blood in the anterior chamber had become absorbed and the conjunctival wound healed, but the pupil was somewhat oval in its horizontal diameter. Eventually his vision was $\frac{6}{9}$, and at no time was there any irritation of the other eye.

CASE 3. *Gunshot wound of the lower lid and orbit.*—On November 25, 1896, I was asked by Dr. W. H. Lush to see a man who had accidentally been shot the day previous. He complained of intense photophobia, and there were much chemosis and hyphæmia

of the right eye. The lower lid had been unmistakably perforated and the foreign body had then struck and pierced the ocular conjunctiva a few millimeters below the corneal margin. Noting the direction of the course it had taken through the lower lid to the eye in almost a straight line, it seemed probable that the shot had also gone through the sclerotic. But there was one noteworthy point—namely, that the tension was increased rather than diminished. Ether having been administered a probe was passed into the wound, but would not travel far, the sinus appearing to take a downward direction, and it was not until the probe was bent semicircularly that it would pass. Then, holding it as a catheter, it glided in without the slightest pressure being necessary. Turning it in any other direction, it stopped at once, and it would have required some force to make a false passage. The shot had evidently struck the eye, and had then been deflected by the firmness of the sclera, and so skirted round the globe in the same way as a bullet will often travel round a rib. The probe went in 3.5 cm., but the shot could not be felt. The wound was washed out with sublimate, and gradually healed up, leaving him with V. = $\frac{6}{9}$.

In these three cases it is probable that the foreign bodies were made aseptic by heat. They all traveled with great velocity: in the first case sufficiently so to traverse cornea and lens, and in the third the lower lid and orbital tissues. In the second case the wound was a ragged and jagged one in the ciliary region, just such an one as might be expected to result in sympathetic mischief in the other eye. But at no time was there any sign of irritation in the left and the wound itself healed quickly.

DEADY.

Andrews, Jos. A.—Tubercle of the Iris.—*International Med. Magazine*, August, 1897.

In an article which cites a number of cases of this disease, taken from the literature on the subject, the author states that tubercle of the iris consists of one or more nodules varying in size from that of a pin head to that of a small pea or even larger, light yellowish white or light grayish white or light grayish yellow in color, usually with no vessels on the surface of the growth, little or no pain, and very little injection of the conjunctival vessels of the globe. The disease may begin as a serous or

adhesive irido-cyclitis ; is generally insidious, and may be confounded with primary sarcoma or syphilitic gumma of the iris. Tubercle is of more rapid growth than a sarcoma, the color of the latter in the iris being reddish gray, blackish, light brown, or flesh color. It occurs between the ages of twenty-four and sixty, while tubercle is usually found between the fourth and twenty-first year. The color of gumma is either an iron red or a deep yellowish red. It is always accompanied by considerable reaction and generally by other signs of syphilitic infection. The location of the tumor is of no diagnostic value ; when the eye is enucleated, in the absence of other signs of tubercle elsewhere in the body, the prognosis is not unfavorable. When the tuberculous process is limited to a small area of the iris, does not encroach upon the periphery, and there are no signs of tuberculous disease elsewhere in the body, an iridectomy should be performed including the growth in the portion of iris excised. If extensive, and involving the ciliary body, with no signs of tuberculosis elsewhere, the eye should be enucleated. In any case the patient should receive constitutional treatment for tuberculosis. When there is evidence of meningitis, or pulmonary disease, or other phenomena pointing to tuberculous disease, indicating that the eye lesion is secondary, neither operation can be of any avail. The author concludes, from his analysis of the cases cited, that there was no positive evidence that the iris was the primary seat of tubercle in any instance.

DEADY.

Ogilvie, F. M.—Optic Atrophy in Three Brothers.—
Medical Week.

The author publishes the following cases, believing them to be examples of Leber's hereditary optic atrophy. One brother, aged twenty-four, attended Moorfields Hospital in October, 1887. He has always been in good health and is temperate in respect of alcohol. He has smoked since he was eighteen, four ounces of "shag" a week. Sight was good up to July, 1887, but at that date, having gone to bed seeing as usual, he awoke hardly able to find his way about. R. V. 6/o, L. V. 6/o ; pupils reacted to light. With the ophthalmoscope the optic disk appeared a little pale on the temporal side, the rest being a dull color. There was slight œdema, and thickening of the sheaths of the arteries on the disk. The veins were overfull and tortuous even to the small branches.

There was a deep physiological cup. Color was very defective, and there was a not very well defined central scotoma. The fields for white were full. He was treated for three months at Moorfields, and, when discharged, vision was R. 3/60, L. 3/60, Jaeger 16 at 4 centimeters. Seven years later, his condition was found to be practically unchanged.

Another brother, twenty-two years of age, attended the Westminster Ophthalmic Hospital in June, 1894. Good health up to commencement of visual failure. He had been temperate, but had smoked since eighteen years of age, on an average $1\frac{1}{2}$ ounce of "shag" a week. In March, 1894, he first noticed a difficulty in reading small print. Coincidentally with this, he suffered from severe pains in the head, of a sharp, shooting character, chiefly confined to the temporal regions and worse at night. He had had no headaches before this date. In May he was obliged to give up his employment. His sister stated that he had been "strange in his manner" for two weeks. Vision R. 6/60. J. 20; L. 6/60, J. 16; pupils reacted. The disk was of a good color, but the vessels were extremely tortuous, some of them dipping anteroposteriorly, as well as curving on the flat. The veins were overfull. There was a peripheral patch of superficial choroidal atrophy, with slight pigmentation, symmetrically placed in both eyes. Refraction emmetropic. The fields for white were contracted. Three months later his vision had gone down to hand movements only, but he could pick his way about in a crowded street pretty easily. The fields for white, repeatedly taken, have always shown concentric contraction, not always constant. There is a central scotoma for white, and his color vision is extremely defective. The disks are now white all over. The former headaches have entirely left him. He has not smoked for eighteen months.

The third brother is twenty-seven years of age. I examined him in February, 1895, for the purpose of comparing him with his two brothers. He then had excellent vision, according to his statement; but on testing it proved to be R. 5/24 on both sides, J. 2 at 11 centimeters, with great difficulty. There was no blurring of the disk margin, but the vessels were very tortuous. Refraction was slightly myopic. When he came to the hospital seven months later, he said he had been subject to headaches with vomiting ever since he can remember. He stated that his

mother suffered in the same way, and he described the condition as "bilious." He was temperate, but had smoked since eighteen years of age, at first one ounce of shag a week, afterward increased to two or three ounces. In March, 1895, he reduced the quantity to about half an ounce a week. He dates the commencement of failure of vision from the beginning of that month. This got steadily worse, and in September he had to give up work. R. V. 2/60, L. V. 3/60, J. 20. Both disks were rather pale, the outer half most so; there was a large physiological cup; the vessels were normal in size, but very tortuous. Fields for white full, ill-defined central scotoma for colors in each eye. Could match wools slowly, but correctly. He was treated for nine weeks, and improved to R. V. 5/60, J. 18; L. V. 6/24, J. 18. Both optic disks were very atrophic. He has not smoked for five months.

It is worthy of note that all these patients were attacked early in adult life. They had all been moderate in respect of alcohol, and they were all smokers of shag tobacco, though not in large quantities. There is no history of acquired syphilis, and no trace of hereditary syphilis. No history of sexual excess or abuse. Headache was absent in the first case; coincident with failure in the second case, ceasing on the failure reaching its maximum; occasional from childhood in the third, and relieved by vomiting. No pathological history of interest. The onset of visual failure was gradual in the second and third cases, sudden in the first. The amblyopia was equal in both eyes in all the cases.

The father, fifty-seven years of age, was an orphan, parents unknown; V. 6/9, retinal vessels not tortuous. The mother, fifty-three, is the youngest of 10 children, 5 males and 5 females. No history in her parents of defective vision. Of the 5 brothers, 3 died unmarried; the 2 married ones have 2 and 7 children respectively; no history of defective vision. Of the 4 sisters, 3 died unmarried. The eldest has only 1 child, a son; sight not defective.

The mother has V. 6/12 and presents tortuous vessels, a condition which prevails throughout the entire family, with the exception of the father. She has had 16 pregnancies, with 2 miscarriages. Of the 14 children born alive, 8 died in infancy, none of them surviving more than 16 months. This mortality does not resemble that resulting from syphilis, being unequally

distributed. None of the children present any evidence of hereditary syphilis. Of the 6 living children, the 3 sons are the subjects of this paper, there being little to note of the 3 daughters; 1 of them suffers from fits, probably hysterical.

DEADY.

Calhoun, A. W.—A Contribution to Quinine Blindness.—*The Ophth. Record*, July, 1897.

The patient was a ten-year old girl from the river bottoms of Arkansas, living in a flat section of country, upon the banks of a river, where, in consequence of the prevalence of malarial fever, the inhabitants were accustomed to use quinine freely.

The patient had a chill which was diagnosed by the father as congestive, and large doses of quinine were frequently given, until, at the end of the third day, the child had taken 720 grs.

The patient becoming unconscious, the father called in the family physician, who restored her to consciousness, after several days of vigorous treatment; but she was totally blind. In consequence of her poor health the eye was not examined until six weeks had elapsed, at which time there was a typical white atrophy of both optic nerves, the blood vessels of the fundus were diminished to mere threads, and there was not the faintest perception of light. The pupils were widely dilated and responded to light very imperfectly. The hearing had been greatly affected, but was much improved.

Strychnia, electricity, and general tonics were used for three or four weeks, but the total blindness remained permanent.

DEADY.

Von Reuss, D. A.—Electrotherapy in the Treatment of Inflammatory Ophthalmia.—*Medical Week*.

Von Reuss has had considerable success in the treatment of certain ocular affections of inflammatory origin by the use of galvanic or faradic currents.

Galvanism was first tried in scleritis and episcleritis—one pole of the battery being attached to an electrode consisting of a small platinum plate of oval shape 8 mm. long by 6 mm. wide—isolated by a coat of varnish covering it entirely except in front, where it is to be in contact with the eyeball. This plate is attached to a

large handle in the shape of a penholder, with an arrangement enabling the operator to open and close the circuit at will. The other pole is placed on the forehead or cheek of the patient or held in the hand by him. The platinum plate is applied directly to the eyeball, previously anæsthetized with cocaine. A current of 1 or $1\frac{1}{2}$ milliamperes is used, the treatment lasting from 60 to 90 seconds, and being repeated every other day. The effect is an immediate and considerable increase in the vascular injection at the point of application of the current and its neighborhood. This irritation is accompanied by a disagreeable sensation, though there is rarely any actual pain. As a rule the episcleritis improves after a few galvanizations, and recovery is obtained in ten or twelve sittings.

He has made use of this treatment in a large number of cases of this affection with entire success, except in two, and even in these there was marked alleviation of the pain. The pain due to episcleritis, in fact, is, as a rule, very promptly relieved by the galvanic treatment.

The same analgesic effect may be obtained in episcleritis by the use of a faradic current, as was found in the case of a peculiarly sensitive patient, who refused to submit to the action of a constant current. In this case, the suffering caused by old-standing diffuse scleritis was quickly relieved by the patient holding one pole of an induction coil, while the operator took the other electrode in one hand and applied the fingers of the other (dry or moistened) to the closed eyelids of the patient, who felt nothing unusual during this maneuver, which lasted from a minute to a minute and a half, whereas the operator had a distinct sensation of the current passing at the tips of his fingers.

This experience suggested to him the idea of employing the same method of faradization in other inflammatory affections of the eyes, and the results obtained were equally favorable. In cases, for instance, of iritis and iridocyclitis of recent origin, pain, which had proved refractory to all the usual means of treatment, rapidly disappeared under faradization by this method. In slight cases, a single application was sometimes sufficient to dispel the pain; but in old-standing iridocyclitis, with deposits on the membrane of Descemet, the effects were much less marked and sometimes *nil*.

The pain associated with ulcerative keratitis rapidly improved

under the influence of the induction current, and sometimes Professor von Reuss found that recovery from this affection was markedly hastened by the electric current.

In the only case of inflammatory glaucoma in which he has had occasion to experiment with the application of the faradic current, the spasms of pain, which had previously occurred five times a day, ceased entirely for several weeks as a result of a single faradization. The moment the pain reappeared, recourse was had to another application, which never failed to produce the same analgesic effect.

DEADY.

Cheatham, Wm.—Is There Ever a Serous Iritis without an Involvement of the Ciliary Body, or Choroid, or Both?—*Ophthalmic Record*, August, 1897.

This article calls attention to a serious defect in our nomenclature and one which is dangerous in the fact that it classes with iritis an affection which is of much greater significance.

The writer states that he has never seen a serous iritis without involvement of both the ciliary body and the choroid with hyalitis. He cites a case of his own in which the typical picture of serous iritis was complicated with opacities in the vitreous to such a degree that the fundus was invisible, and says he can give such cases by the score.

DEADY.

ITEMS.

—Dr. D. A. MacLachlan of Detroit, Mich., has removed his offices to rooms 1401-4, The Majestic Bldg., cor. Woodward and Michigan aves.

—The Editors of *The Laryngoscope* announce that beginning with the January, 1898, issue, Messrs. Jno. Wright & Co. of Bristol, Eng., will publish a foreign edition of *The Laryngoscope*.

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